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ABSTRACT

This guide endeavors to teach the faculty how to manipulate the structure of the new facility in the most creative way. The first chapters discuss the interior design, graphic considerations within the facility, materials and equipment suited for open space schools, and recommended audio-systems. Later chapters cover the exterior facilities, such as the soil and landscaping layout surrounding the school site. Finally, there are recommendations concerning the problem of implementation. To maintain continuity and quality, the initial planning concept must be continued throughout the construction process and throughout the life of the building. (Page 2 of the introduction is poorly printed.) (For related documents see ED 047 171 through ED 047 188.) (DAS)

ED 047 178

GENERAL LEARNING CORPORATION
EDUCATIONAL SERVICES DIVISION

AA 000 671

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FIRST FACILITY
UTILIZATION MANUAL

A Teachers Guide To The Use Of The FLINT Elementary School

Prepared By:

The Environments Group
EDUCATIONAL SERVICES DIVISION
General Learning Corporation

October 7, 1969

TABLE OF CONTENTS

Page

I. INTRODUCTION

II. INTERIOR DESIGN

- A. Level Below Plaza
- B. Plaza Level
- C. Stage One
- D. Stage Two
- E. Stage Three and Four
- F. Above Plaza Level - Center
- G. Mezzanine
- H. Flexible Features
- I. Communications Systems

III. GRAPHICS

- A. Introduction
- B. Graphic Hardware
- C. Graphic Software
- D. Color

IV. EXTERIOR ENVIRONMENT

V. IMPLEMENTATION

VI. APPENDIX

- A. Equipment List

INTRODUCTION

The design for the FLNT First Facility, which has a capacity of 700 students from age 3 through age 12, has been completed and contractors will start construction in a number of weeks. A document on the facility containing preliminary specifications was published in April, 1969, to provide the architect with information describing a "new and relevant system of education" for the new town. This document is a revision of the preliminary specifications. It will be in a format which addresses itself to the teachers, administrators, students and townspeople who will be using the facility.

The first facility was designed by Louis B. Fry, of Fry and Welch Architects, as a building which not only accepts change, but one which expects change. The interior of this building is made up of components which can be erected and altered by any adult. Many features can be manipulated by the students and some can be changed by the smallest child. It is a structure which will not be complete until the staff has positioned the interior partitions during the implementation of the educational program. The facility is a tool, in the same way that a movie projector or blackboard is a tool, to be used by the participants to mold a program, to activate young minds, to encourage insights into the organization of space and to make the environment an active element in primary education.

When one thinks of the traditional means of using a classroom or changing the learning environment, one thinks of diligent teachers decorating a first grade room with orange paper pumpkins pasted on the windows or mounted symbols of the alphabet. The letters are likely to be displayed in sequence, with the small letter following the capital letter, attached above the blackboards and marching tediously around the room.

In contrast, this facility encourages the manipulation of the environment in a much larger sense. A teacher or group of teachers can remove a wall, turn off most of the lights in a zone to form a dramatic area, apply graphics to large boards and suspend them from the ceiling, alter the size of a room to accommodate only ten students, write or paint with watercolor on any surface from floor to ceiling, and change the configuration of movable storage units to form a huge open space. Because the whole building has become as flexible, carefully programmed, and changable as a lesson in mathematics, a new educational program is needed.

This document is a recipe book to generate creative environments; it is a manual to learn about the working parts and how to use them; it is an idea book to stimulate new ways to group or cluster people; and it is a lesson plan to document the architectural design so that the facility may become an active part of the learning experience.

In the first chapter, aspects of the interior design such as the architectural plan and organization of the facility, the flexible partitioning systems, and grouping and organizational possibilities for the space will be discussed. The following chapters include a description of graphic considerations within the facility, a discussion of the materials and equipment suited for open space schools, and a discussion of the type of audio-system recommended.

Another chapter concerns itself with the exterior facilities. For example, Ecology, or the study of the evolving environment, can enrich the curriculum for the primary school population. Such a program can be enhanced immensely with a responsive utilization of the soil and landscaping layout surrounding the school site.

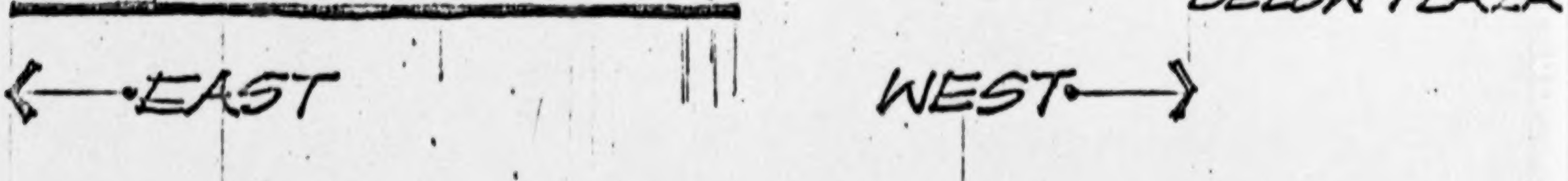
Finally, in the last chapter, General Learning has made some recommendations concerning the problem of implementation. If continuity and quality are to be maintained throughout the design, construction and initial occupancy of this facility, then the parts which make up the whole must be monitored and adjusted to insure a creative resolution. The initial planning concept must be maintained throughout the construction process and throughout the life of the building.

INTERIOR DESIGN

The plans for the First Facility include community services areas, recreational areas and educational space for 700 children from the age of three to the age of thirteen.

The following description of the design will start with the bottom floor and work up through the different types of space.

SCHEMATIC SECTION
(LOOKING SOUTH)


MEZZANINE
STAGE III & IV
RESOURCE CENTER
STAGE II
ABOVE PLAZA
ADMIN. & COMM.
LOBBY
RAMP
STAGE I
PLAZA LEVEL
POOL & GYM.
BELOW PLAZA
EAST
WEST

LEVEL BELOW PLAZA - East & West

Since the building is stepped down a hill, the entrance to the lower lobby in the center of the building is the major access to the facility from the North. This lobby which is near the kitchen and the outside eating area, can be used as a decentralized dining area. Since it is also near the pool, swimmers could eat in the area when the pool is in use.

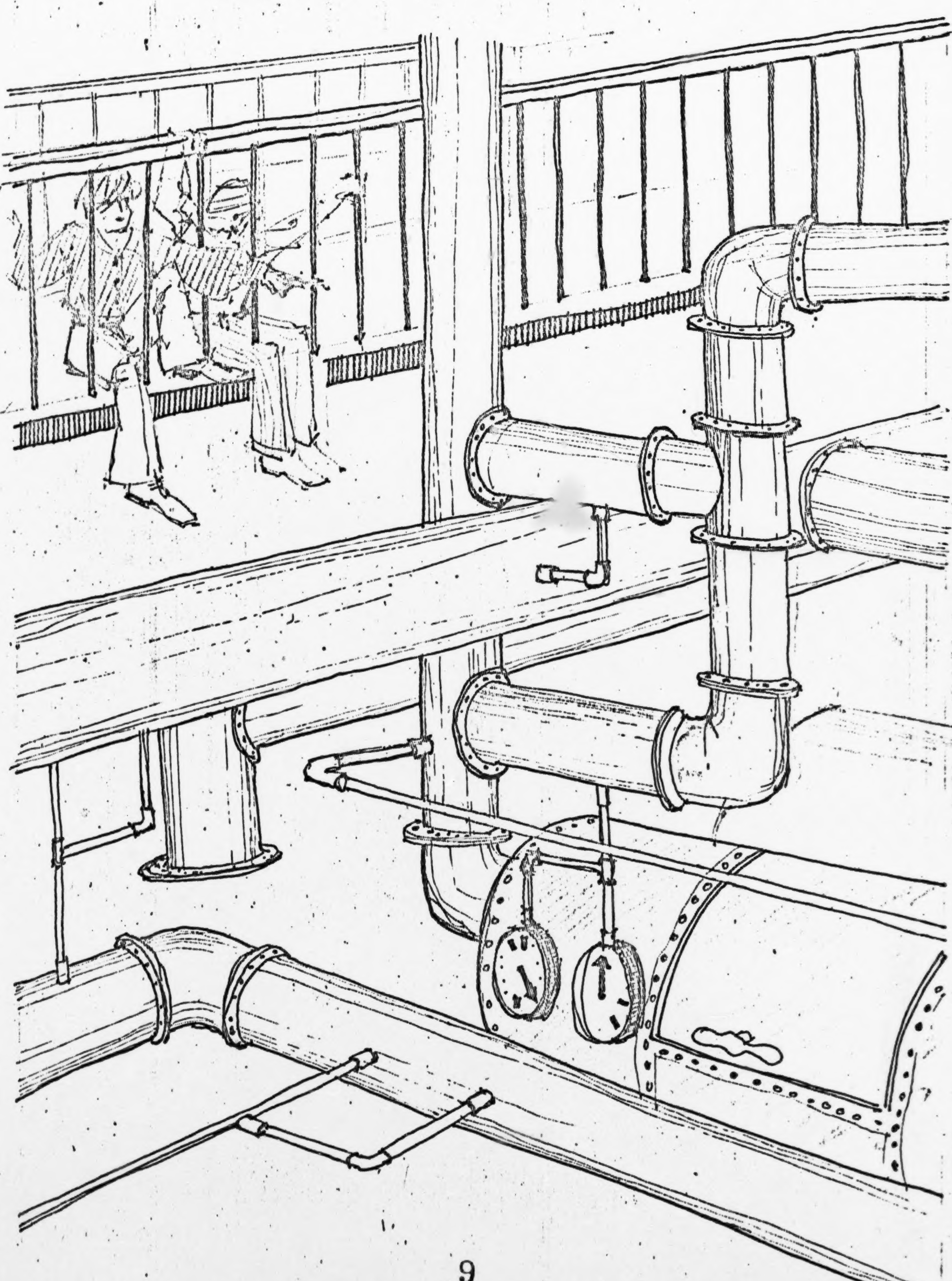
This level has access to the swimming pool and to the floor of the gym and auditorium. The spectators will use bleachers and galleries on the Plaza Level for observing games and activities. There are public toilets and telephones in the concourse which connects the lobby with the pool and the auditorium.

Swimming Pool

There is an Olympic-size pool with a training pool on one side. Lockers for both the school population and the community adjoin the swimming area. An outside pool deck, to be used in warm weather, may be reached through sliding glass doors.

Gymnasium - Auditorium

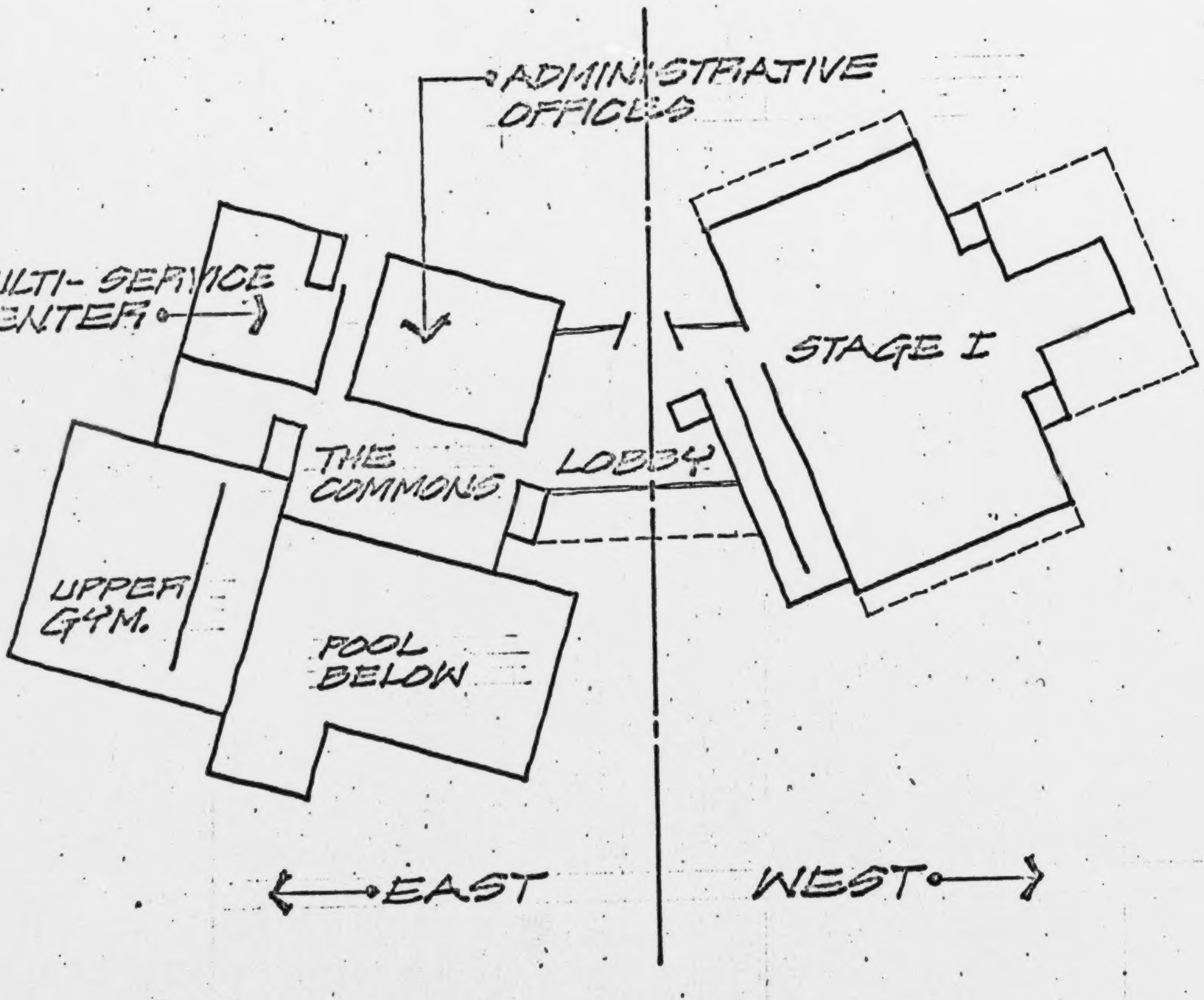
The gym is to be used primarily for the physical education program and community programs. A portable stage with an extensive lighting system may be set up. The seating capacity, including built-in bleachers on the Plaza Level and folding chairs on the auditorium floor, is 500 - 600 persons.



Kitchen-Boiler Room - Custodians Office

Traditionally these areas are considered off limits to teachers and students, yet they contain some of the most fascinating equipment and signaling systems in the school. Therefore, in this facility, these areas will be used by the children, either for group activities or for individual research projects.

PLAZA LEVEL


ADMINISTRATIVE OFFICES
MULTI- SERVICE CENTER
STAGE I
THE COMMONS
LOBBY
UPPER GYM.
POOL BELOW
EAST
WEST

PLAZA LEVEL - East & West

This area is the primary level of the facility. It contains the early learning center in the western section and community services, administrative services and public areas in the eastern section. All these areas are accessible to the town center on the south.

Lobby

The Plaza level lobby, located directly above and overlooking the Level Below Plaza lobby, serves as the main entrance to the facility. It will be used as an orientation area for large groups of visitors and a decentralized snack area for the entire school population.

Multi-Service Center

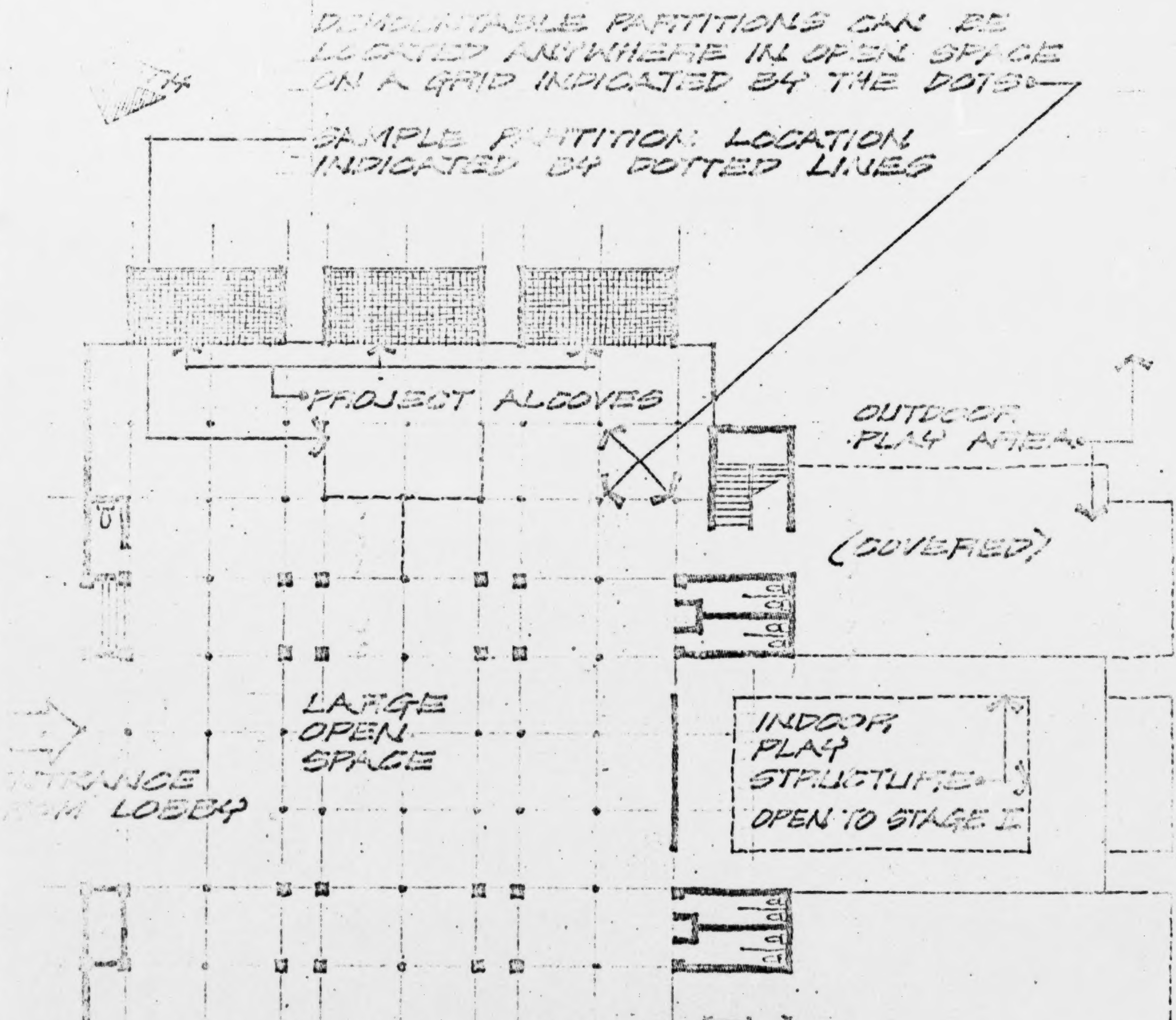
The community will need a variety of spaces for medical and social services. The large, open area in the east wing will be divided with demountable partitions as the services are defined.

Administrative Offices

Offices for the central administration should be almost indistinguishable from the community areas. These offices will act as a buffer and an information center for the operations taking place.

The Commons

This space is designed as a multi-purpose room for audio-visual and dramatic presentations, exhibitions, and meetings. It contains a "cyclorama" for wide movie projection, chalkboards, projection screens, adjustable lighting and other audio-visual equipment. The area can be used for exhibits, banquets, movie screening and other uses to be identified by the teachers and school population.


DEMOUNTABLE PARTITIONS CAN BE LOCATED ANYWHERE IN OPEN SPACE ON A GRID INDICATED BY THE DOTS
SAMPLE PARTITION LOCATION INDICATED BY DOTTED LINES
PROJECT ALCOVES
OUTDOOR PLAY AREA
(COVERED)
LARGE OPEN SPACE
TRANCE
OM LOBBY
INDOOR PLAY STRUCTURE
OPEN TO STAGE II
CARPET ON FLOOR
TILE ON FLOOR
OUTDOOR PLAY AREA
STAGE ONE

STAGE ONE - Plaza Level West

175 children from three to five years of age

General Educational Characteristics

Teachers, parents and paraprofessionals as well as older students will provide direction and guidance to the young children consistent with the individual child's capacity to respond and with his attention span.

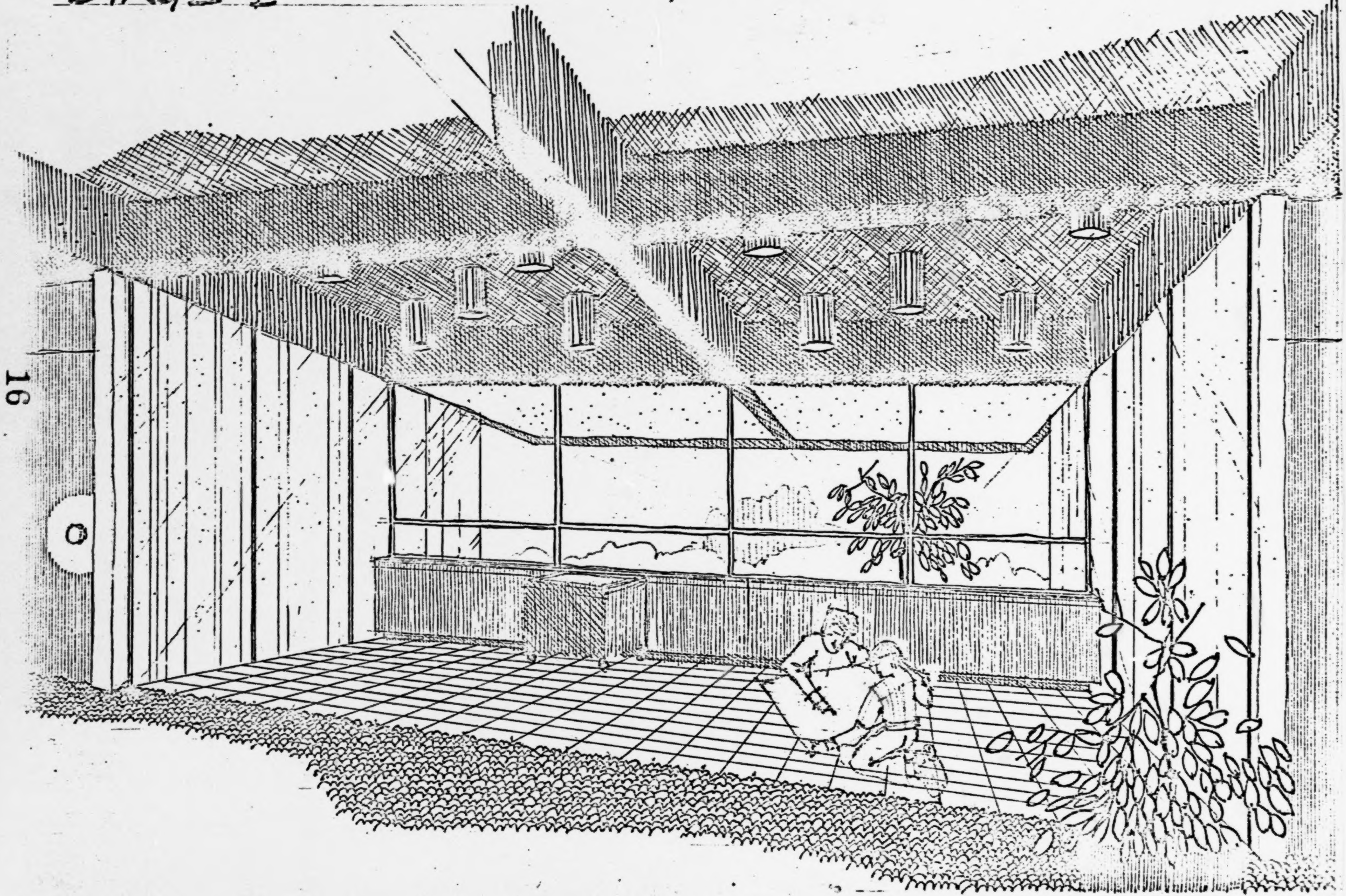
The youngsters will be encouraged to move about the area freely to allow a high level of physical activity and a variety of educational experiences. Students will be engaged in activities bringing immediate gratification (i.e. if a child wants to build blocks, he can sit down and do so at once). The space will also include protected areas similar to "home" where the students can retreat and feel safe.

The child must come away from his early educational experiences with enthusiasm. In exploring formal instructional materials, he should reinforce his natural interests and develop a positive attitude toward both school and himself.

General Environmental Characteristics

A large open area, which can be altered and manipulated at will by its inhabitants as they discover new ways to use the environment, is designed for Stage One activities. The area itself is an educational tool. This space, approximately 100' x 150', is punctuated on the periphery by special areas for activities unique to small children. There are project alcoves (with water available) which can be articulated for special purposes such as water play, planting, etc. A play structure vertically connecting Stage One to Stage Two is designed to encourage kinesthetic exploration as well as provide a rich variety of places for dramatic productions, role playing or small group meetings. Adjacent to this structure are two outdoor play areas intended primarily for this age group.

PROJECT ALCOVE
STAGE I



Large Open Area

This area is equivalent in size to six large classrooms including supporting rooms for teacher work space, storage and eating facilities. The use of this space should involve the following activities:

For Faculty and Community:

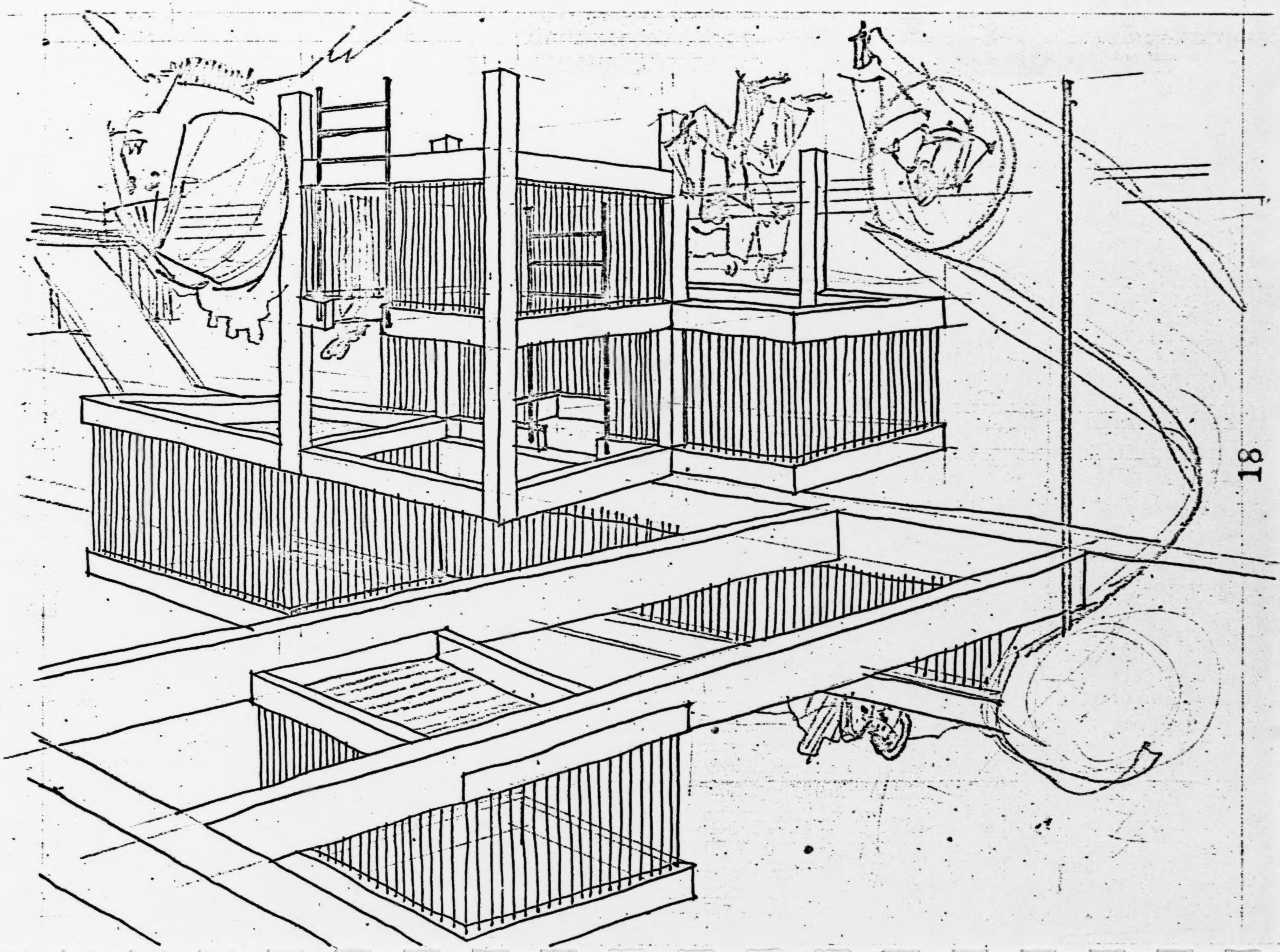
- work space for planning, discussions and counseling
- teacher/parent planning spaces
- lounge for adults with and without children
- telephone stations for making appointments, calling parents, etc.
- community supplementary programs
- resource and storage area for individual lesson plans, educational material, toys not in use, etc.

For Students:

- quiet reading spaces for individuals and small groups
- tables for project work in art, etc. and for snacks and lunch
- block play areas
- dress-up and dramatic areas
- lockers and "cubbies" for garments and personal belongings
- storage and display for current games and activity packages

Within this space, floor to ceiling partitions can be set up anywhere on a 10' x 10' grid pattern, rolling teacher wardrobes and high storage units can be resituated easily and low storage units can further define the space as needed. A majority of activities will take place on the carpeted floor. (The furnishings, equipment and movable partition systems are described in greater detail in Section H.)

Six separate areas at the periphery of the large, open space, each 10' x 20' with exterior windows above the floor, will be used for projects. The alcoves have masonry walls with standards and brackets for shelving and displays on two sides. Designed for small groups or individuals, they can be isolated from the main space by drawing a curtain. Tile floors can be easily covered with carpet to convert the alcoves into study or rest areas. Incandescent lighting provides warmth and offers a contrast to the fluorescent lighting in the large, open space.



Indoor Play Structure

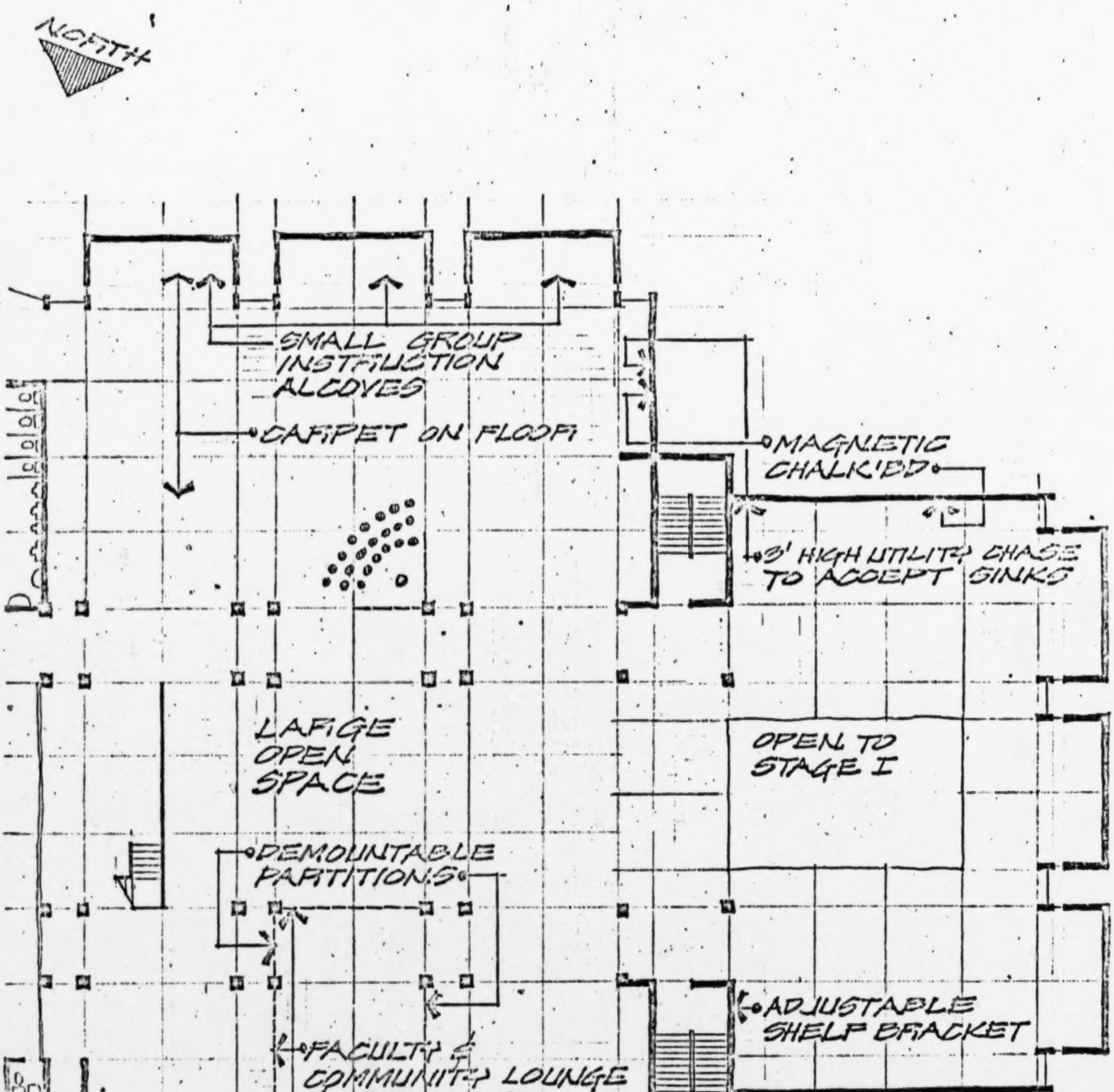
Adjacent to the large open space and immediately accessible to two outdoor play areas is a two-story, six-level structure designed for children. It consists of a series of platforms, ladders and ramps at different levels ascending to the Stage Two area and the skylight above. There are a number of ways to climb up and down between the two stages and a variety of spaces for different activities. The structure will be used for recreation, kinesthetic exercise, small group meetings and other activities. A sketch appears on the opposite page.

Circulation

Circulation through Stage One is designed to be informal. There are no corridors. Primary access will be through the administration and community area and the lounge-lobby in the center of the building. Parents and visitors wishing to observe the operation can be accommodated in several ways. They can be separated from the program with demountable partitions made of one-way glass or included in the program by encouraging them to move through the space while classes are going on.

Summary

The traditional classroom can and frequently does exist as an isolated box with desks, chairs and small displays serving as the only visual stimuli. In contrast, the large, open space with adjoining alcoves and play areas must be designed as a volume to be manipulated and decorated on a large and small scale by the inhabitants. The group responsible for the organization of the early education program must locate partitions, organize space according to group sizes and group characteristics, and consider spatial relationships as an integral part of the learning experience.


NORTH
SMALL GROUP INSTRUCTION ALCOVES
CARPET ON FLOOR
MAGNETIC CHALK'BD
3' HIGH UTILITY CHASE TO ACCEPT SINKS
LARGE OPEN SPACE
OPEN TO STAGE I
DEMOUNTABLE PARTITIONS
ADJUSTABLE SHELF BRACKET
FACULTY & COMMUNITY LOUNGE & WORK AREA
STAGE TWO

STAGE TWO - Above Plaza Level/West

235 children from five to seven years of age

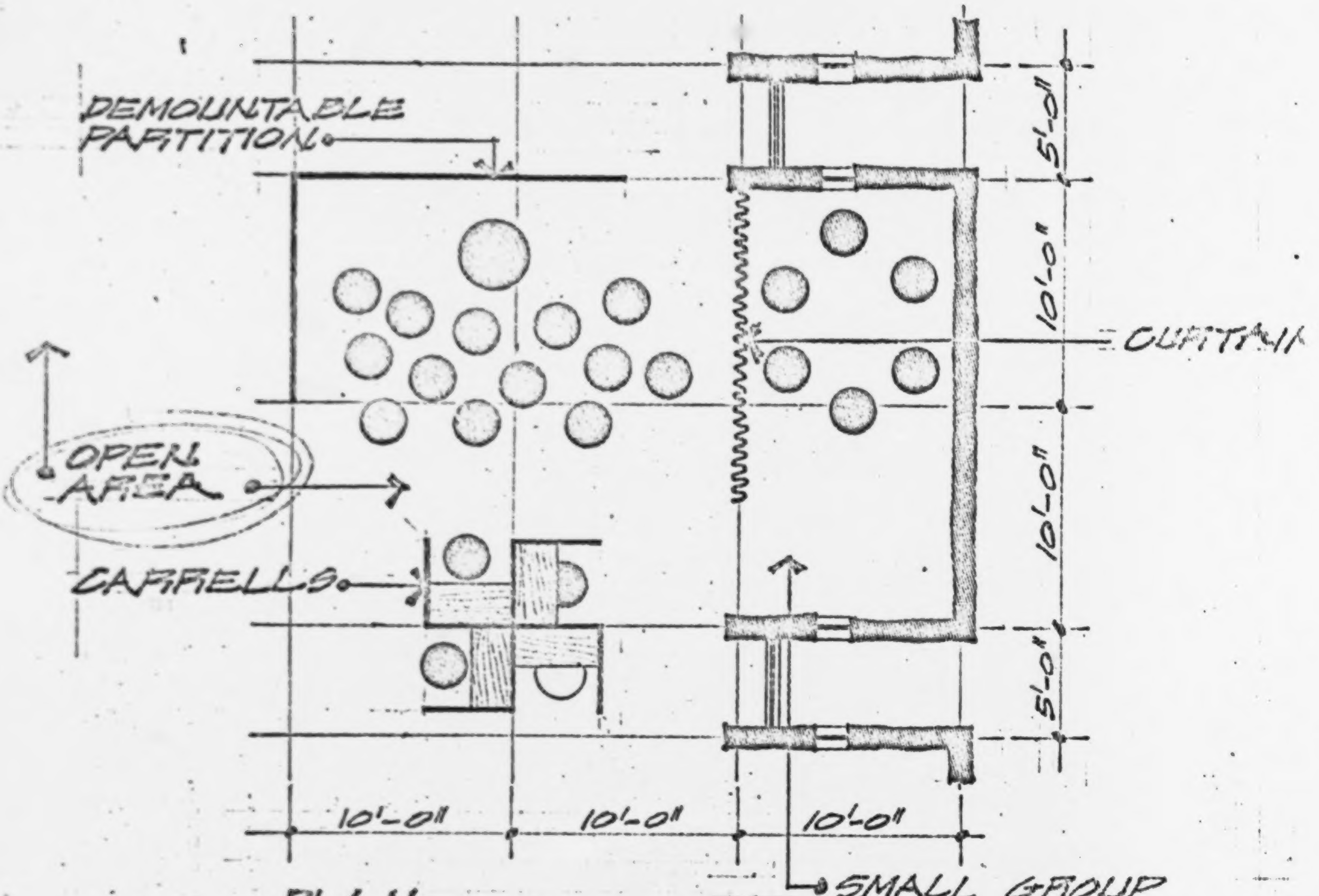
General Educational Characteristics

Children of this age generally become more independent, secure and responsible for their actions. They will be introduced to more formal instruction; testing will be initiated and reading skill and comprehension will be stressed. Formal group and individual work will be introduced for periods of ten to twenty minutes and experiences will be designated to increase persistence and attention.

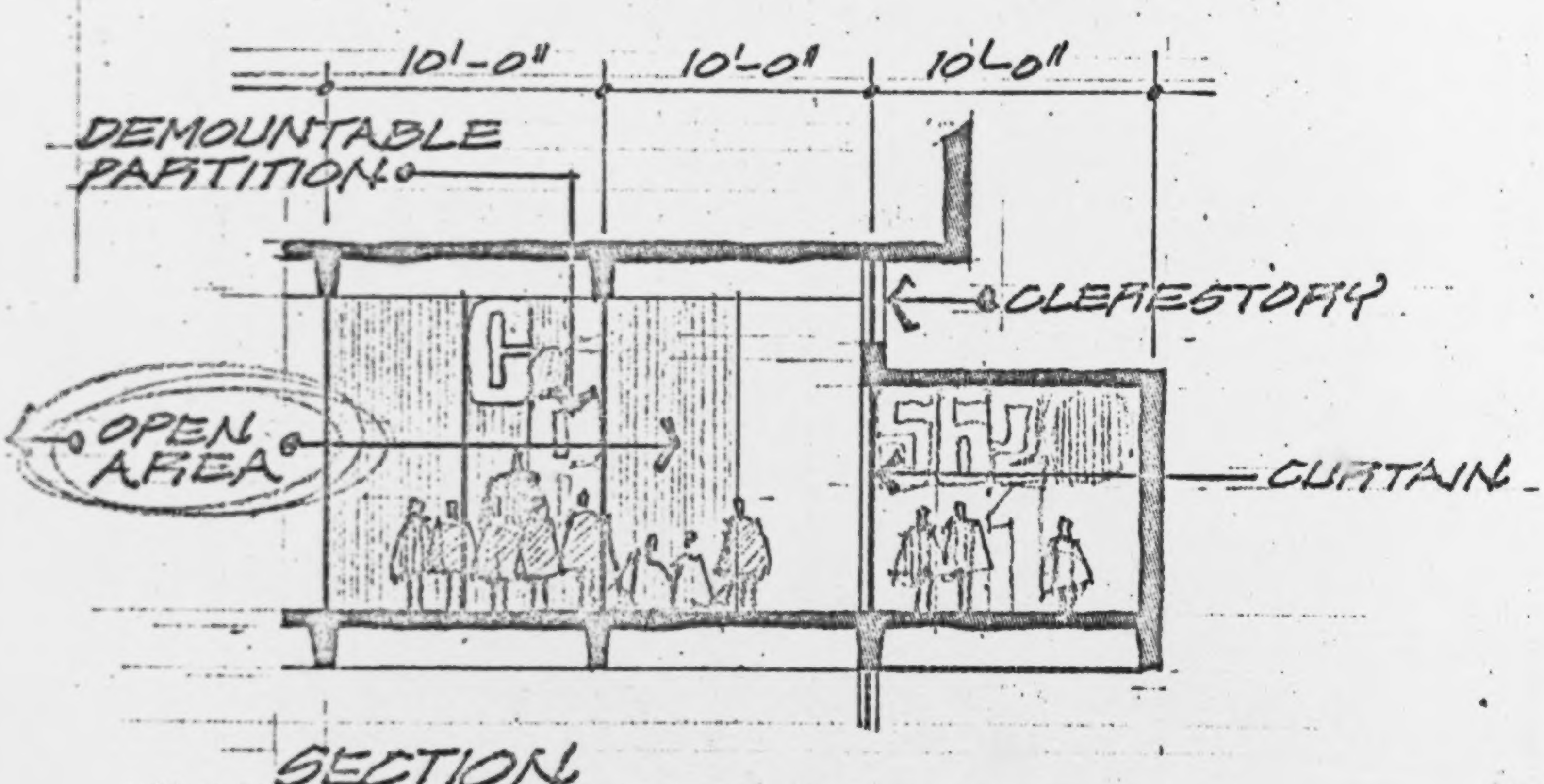
As specialized instruction begins to increase, well equipped areas will be set up as needed. There will be resource materials as well as individual work areas available throughout. Arts and crafts will be taught to develop digital dexeterity and to introduce the students to vocational techniques.

General Environmental Characteristics

A large open area is designed for Stage Two as in the area below. However, the articulation of the space will differ because children of this age need to be exposed to more specialized activities. By the age of five or six, children are able to put off immediate gratification for comparatively longer range goals. They can go to special areas for a planned event and carry it out. Children will go to the gymnasium for their exercise as well as use the indoor play structure described in Stage I and the outdoor roof surface above the swimming pool and gym. Children will go to a resource center for special projects and go to a music room for choral, band or dance rehearsal. The child's environment need not be as well defined or limited as in Stage I.


DEMOUNTABLE PARTITION
5'-0"
10'-0"
CURTAI
10'-0"
OPEN AREA
CARRELLS
5'-0"
10'-0"
10'-0"
10'-0"
SMALL GROUP INSTRUCTION ALCOV

PLAN


10'-0"
10'-0"
10'-0"
DEMOUNTABLE PARTITION
CLERESTORY
OPEN AREA
CURTAIN

SECTION

Large Open Areas

This space, which is slightly larger than the Stage I area, could accommodate eight classrooms. The activities to be included in this space are:

For Faculty and Community:

- teacher wardrobes and work area
- community and faculty lounge
- teacher/parent planning areas
- workspace with carrels for paraprofessionals and parents
- telephone stations (4)
- community supplementary programs
- resource area
- storage for learning packages, supplies and materials

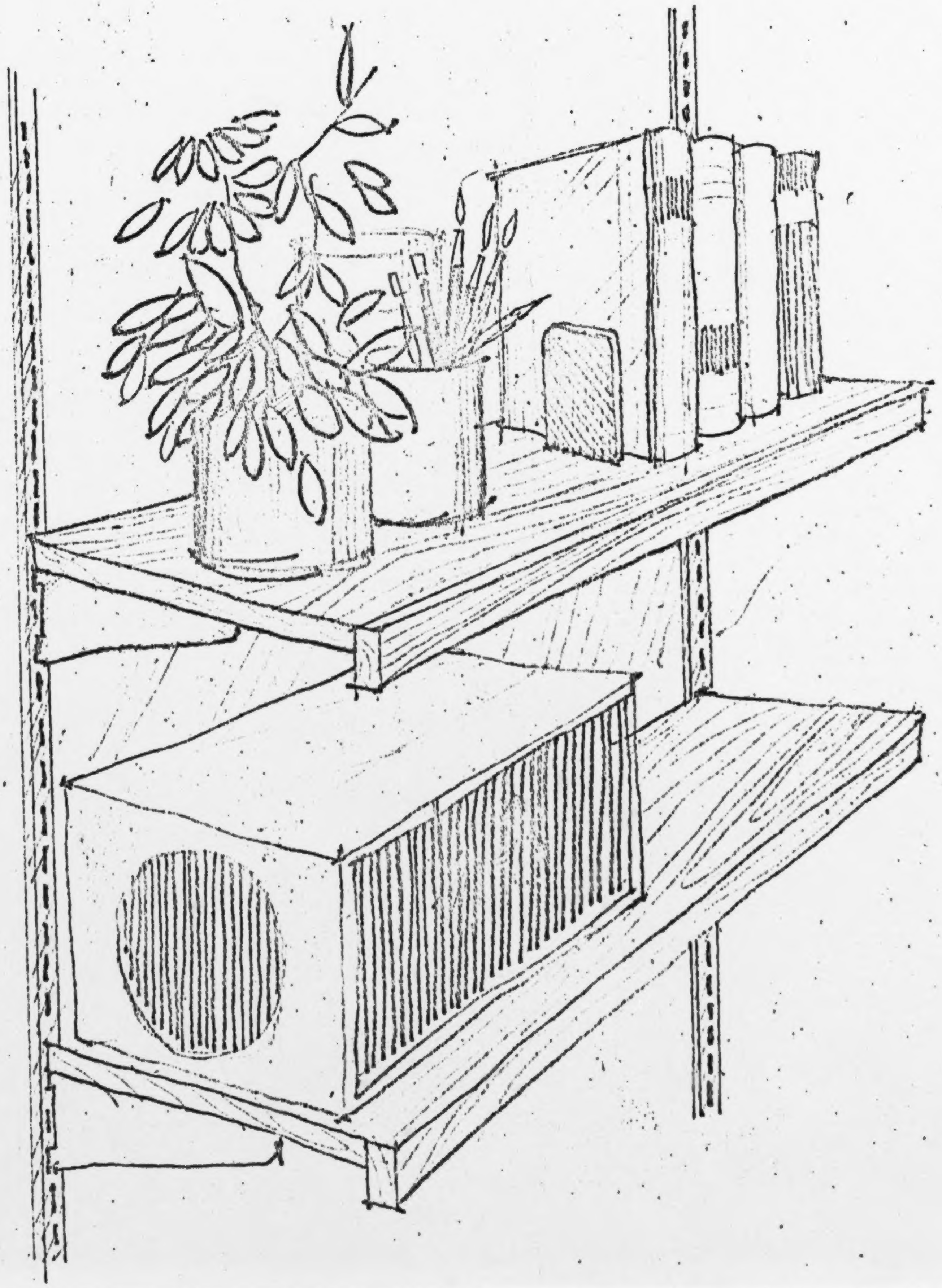
For Students:

- project areas with tables to encourage small group work
- dramatic area for incidental productions
- storage of clothing and other personal property in rolling casework
- storage and display for resources and individually prescribed learning packages
- special projects area: along the walls of the large space are small areas with vinyl asbestos tile floors to be used for wet activities. There is a utility duct running along the wall so that a laboratory table with a sink, or a water table can be plugged in easily.

The type and number of areas described above will be developed by the staff. The spatial arrangement can be changed hourly, daily or periodically each month. Descriptions of the methods of change are discussed in Section H of this chapter.

Quiet Reading Areas

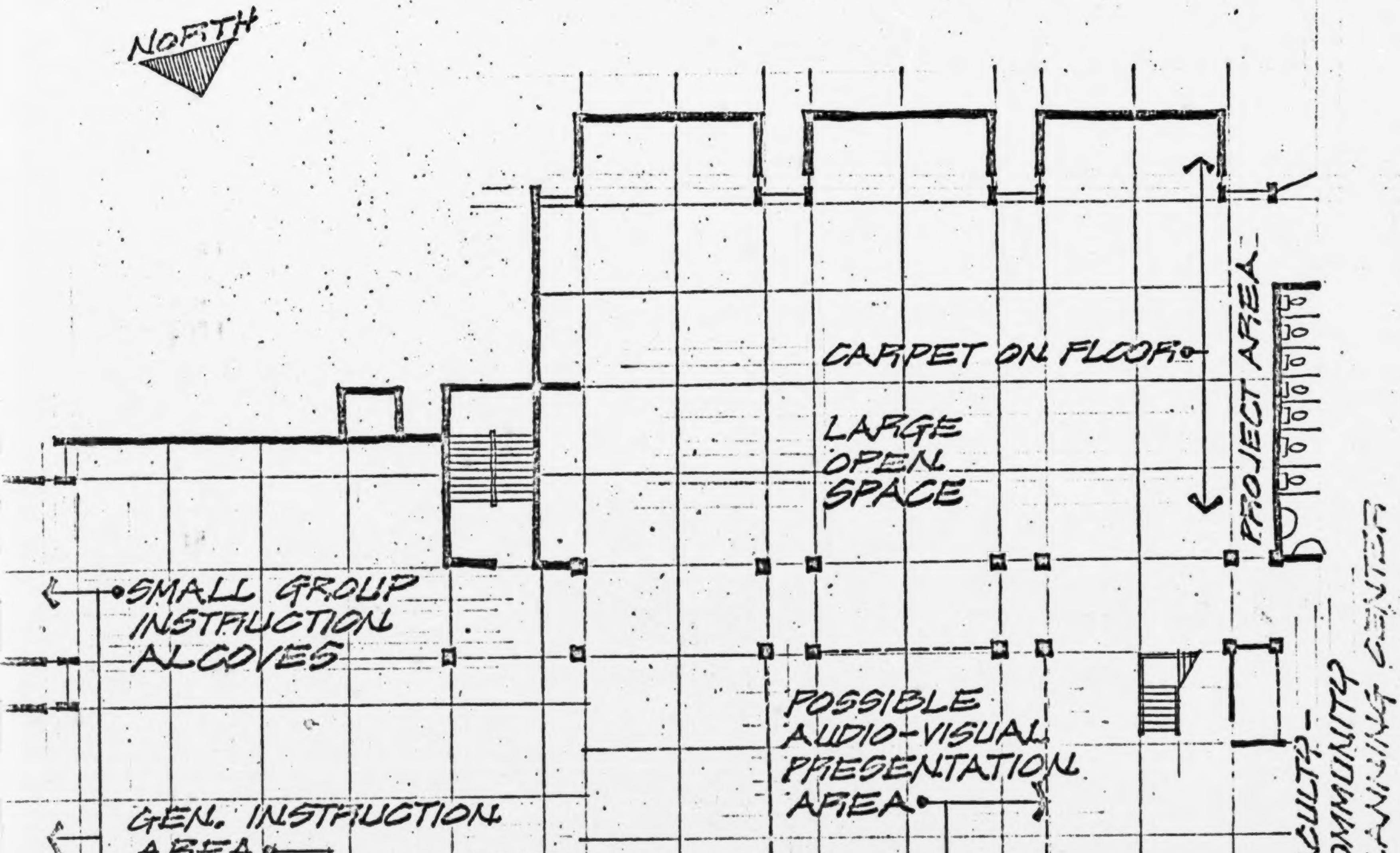
Corresponding to the Stage One alcoves on floor below there are quiet reading areas in Stage II. There are nine areas 10' x 20' in size. Although each one has the same characteristics, each alcove will be used differently according to the location of other activities within the large, open space and the equipment and furnishings within the areas themselves.



Each area will have carpets and incandescent lighting. The ceilings will be low. The wall surface will consist of metal tackboard-chalkboard with wall bracket standards occurring on a module of four feet. The standards allow an adult to add shelves, displays, or three dimensional wall hangings with ease and speed. There will be demountable partitions to enclose or divide these areas in two as needed.

Outdoor Recreation

Since children of the ages seven to twelve are physically active and are beginning to learn and enjoy team-oriented games, an outdoor play area on the roof of the swimming pool and gymnasium is located adjacent to the Stage III & IV area. It is designed for active games including volleyball, badminton, tetherball as well as other forms of play. A fireplace and sitting area will be used for snacks and picnics and serve as an additional decentralized eating area.



NORTH
CARPET ON FLOOR
PROJECT AREA
LARGE OPEN SPACE
SMALL GROUP INSTRUCTION ALCOVES
POSSIBLE AUDIO-VISUAL PRESENTATION AREA
FACULTY - COMMUNITY PLANNING CENTER
GEN. INSTRUCTION AREA
TO RESOURCE CENTER
PROJECT AREA
ROOF DECK RECREATION AREA
UTILITY CHASE TO ACCEPT SINKS

STAGE THREE & FOUR

STAGE III & IV - Above Plaza Level/West

290 children from seven to twelve years of age

General Education Characteristics

Stages III & IV of the educational program have been combined into one area because the children of this age will be engaged in similar activities. Instruction will be based on the capabilities of the child with each student progressing at his own rate of speed. Educational materials of all types and equipment such as tape recorders, typewriters, cameras, and projectors, will be used. Students will participate in reading, writing, listening, lecturing, discussion, research, and construction alone and in groups. They will be encouraged to use much of the audio-visual and other special equipment themselves. Whenever possible, activities will provide well-defined objectives for the students to achieve. Reading and mathematics will be stressed as well as concept formation, psychomotor skills, creative self-expression and beginning process skills related to work.

General Environmental Characteristics

The large open space in Stage III & IV is intended to replace a number of classrooms. The types of groups established within the area will continually remain flexible. The grouping will vary as small groups and individuals engage in learning activities. Spaces will be defined to allow children to project filmstrips, to have a seminar with three to fifteen students and perhaps a teacher, to get together in a group of seventy for an informal dramatic presentation, to collect at tables for a group project, to go to a carrel to work on a research paper, etc. This flexibility in arranging the space will provide the staff with many options. However, if the options are not used -- if the partitions are not "mounted and demounted" or the rolling casework is never rolled --

this general, versatile space can turn into a stagnant and traditional school configuration.

Large Open Areas

This area , designed to accommodate 290 students, is larger than the Stage One and Stage Two areas. It is similar in plan to the Stage Two area and is intended to include the same activities. The space dividers may be set up into more formal arrangements here than in the areas for younger students because the methods of instruction as well as the subject material generally require the students to concentrate and work at one activity for longer periods of time.

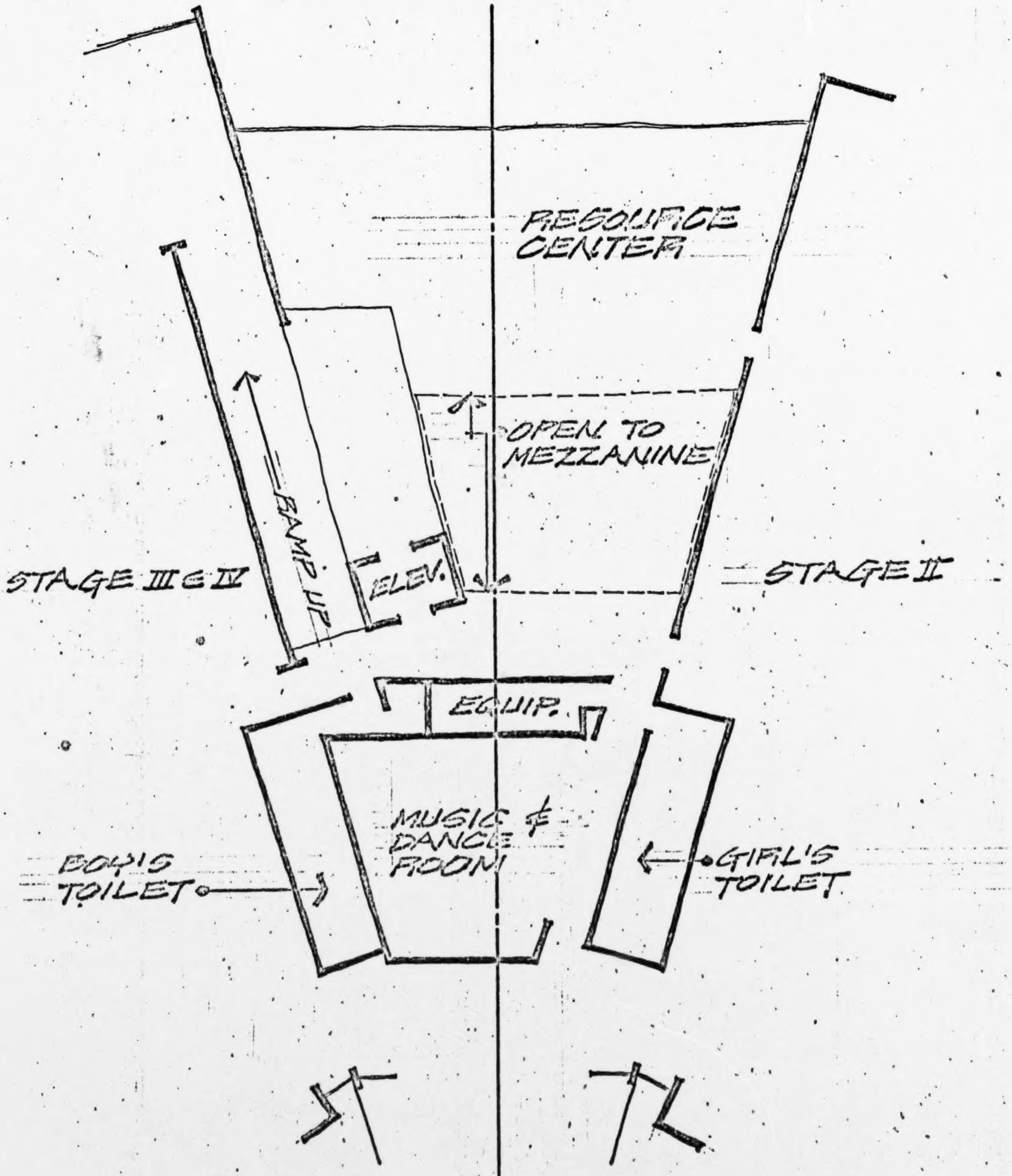
Project areas on the periphery of this space allow individuals or groups to work on projects for longer periods of time. There is direct access by stairs to the mezzanine above as well as direct access to the resource center located on the same level. The area will be used for a variety of purposes. This includes parent-teacher conferences, classes for adults, and other supplementary community programs.

This space expects to be changed. Therefore the articulation of the large space at any one time cannot be predicted.

Small Group Instruction Alcoves

The alcoves are identical to those in Stage Two in size and shape. Because students of this age generally begin to engage in one-to-one confrontations and small group work, these spaces will often be used by more than one student at a time. Two, three, or four students, with or without a teacher could work on a research project together or drill each other on an exercise.

ABOVE PLAZA LEVEL - CENTER


RESOURCE CENTER
OPEN TO MEZZANINE
RAMP UP
ELEV.
STAGE III & IV
STAGE II
EQUIP.
MUSIC & DANCE ROOM
BOY'S TOILET
GIRL'S TOILET
EAST
WEST

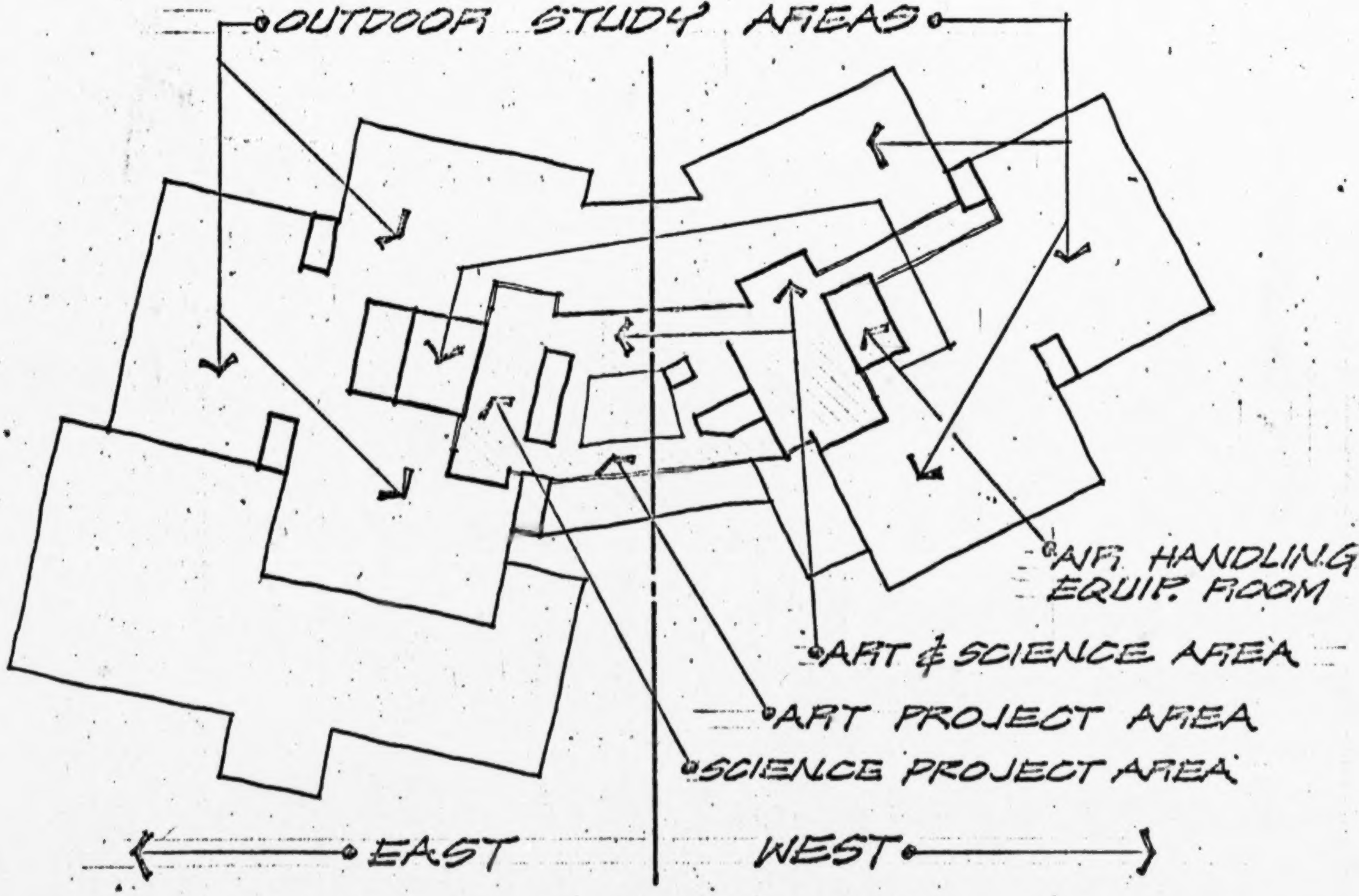
ABOVE PLAZA LEVEL - Center

Connecting the two large areas for Stage II and Stage III & IV are facilities for common use: music and dance room, the resource center and the lavatories. The music room is isolated to reduce acoustical distractions in the large open spaces.

The resource center will be equipped with "wet and dry" carrels, work tables, and resources for advanced work including slide-tapes, filmstrips, records, books, etc. This center is intended to reinforce the material available in the Stage areas.

In addition, periodicals and research materials for adults, will be available. It will be possible to adapt materials, furnishings and equipment for adult use as necessary.

MEZZANINE


OUTDOOR STUDY AREAS
AIR HANDLING EQUIP. ROOM
ART & SCIENCE AREA
ART PROJECT AREA
SCIENCE PROJECT AREA
EAST
WEST

MEZZANINE

The mezzanine serving the entire school includes a science area and planetarium with a domed ceiling, a dark room for photography, and project areas for art and science. Located above the resource center and music room, it connects two stairways in the general learning areas and provides access to planters and project areas on the roof.

In addition, the mezzanine contains a cooling tower and a room for the air conditioning equipment. In the same way that the boiler room and the kitchen are to be used for special studies and observations, these areas should be utilized by the students.

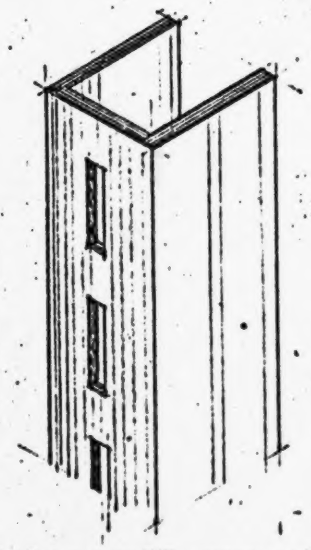
Outdoor Roof Areas

The outdoor area adjacent to the mezzanine has been designed for instruction and recreation. Planters for growing flowers, vegetables and plants on the periphery serve as a protective fence. Science and art projects should be undertaken both inside and outside this level. Because of the decentralized snack facilities, students may eat in the outdoor roof area.

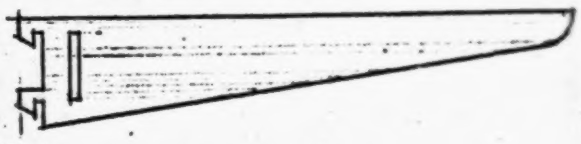
FLEXIBLE FEATURES

Wall Brackets and Standards

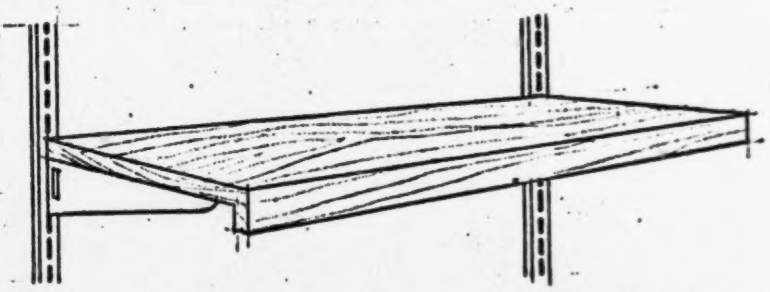
Wall brackets and standards are set into most of the interior walls to be used for display or storage as needed. Individual areas are not designated for specific purposes. The wall bracket standard, which is sketched below, also provides an interesting modular design when not in use. The bracket standard:



is designed to receive a standard book shelf bracket:



And two of these will support a shelf at any height:



The brackets themselves can also be mounted on the demountable partitions as well as the modular carrels recommended for the facility. This continuity should enable the staff to design an innumerable number of useful storage and display units as well as mount graphic panels. It is hoped that the standard item will acquire new uses and new designs as the staff works with it.

Moveable Equipment

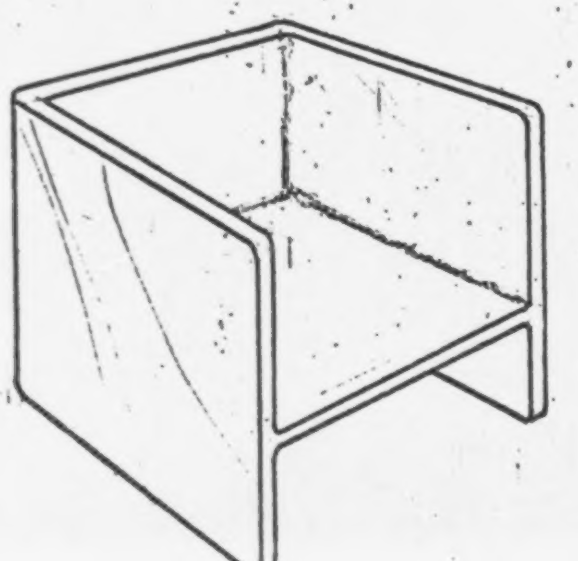
Many of the storage needs which, traditionally, are served by fixed closets or built-in cabinets, will be filled by rolling casework. Some will be low so that a child can see over them and others will be higher to create greater visual privacy. They will assume the following storage functions:

- cubbies for personal belongings
- hooks for outside garments
- instructional papers and books
- games and toys
- teacher's wardrobes
- teacher's work space
- student carrels (if desirable even these can be on casters)

Two Alternatives to Desks and Chairs

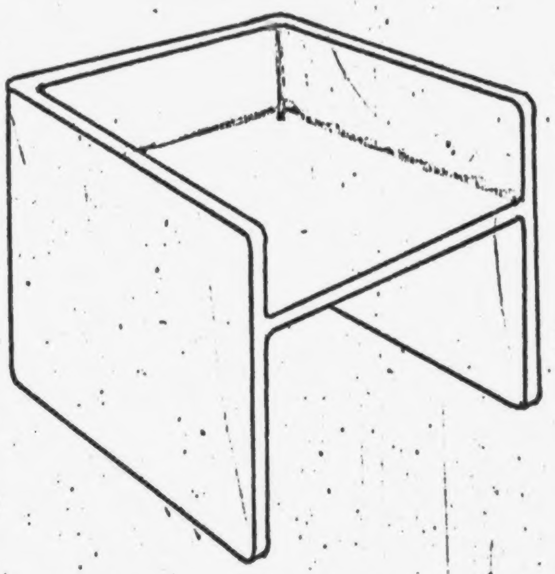
Frequently, when a large open space is used in place of the traditional classroom, the equipment and furnishings needed for the old classroom are put into the new space. Consequently, the freedom and flexibility offered in the open area are impaired because of the many desks and chairs.

Through the efforts of the Educational Facilities Laboratory, several alternate types of equipment have been devised. The first, which is currently on the market, is called the Educube. It is manufactured by the Monsanto Chemical Company of St. Louis. It is a polyethylene cube which is a chair:



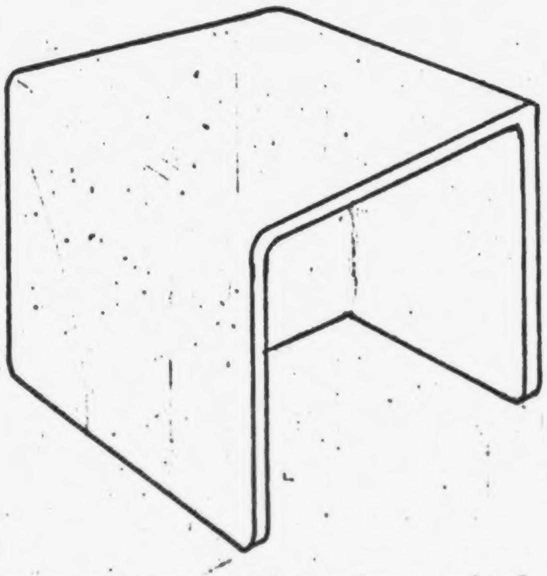
for small children

A chair turned over with a higher seat:

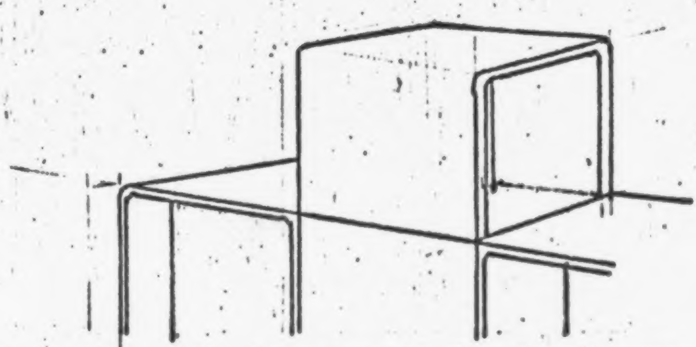


For larger children

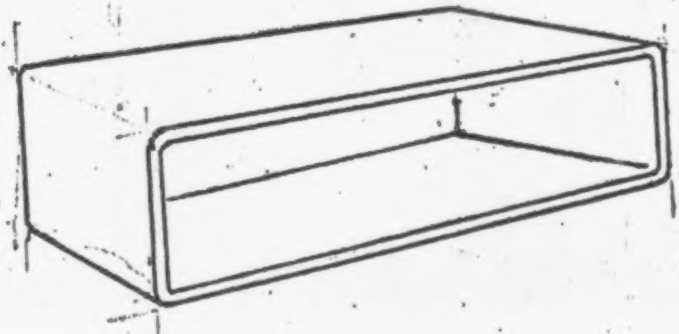
And a desk for either chair:



Stacking combinations and desk-chair combinations are numerous. The cubes, which come in primary colors, will be decorative and easily stacked when not in use.

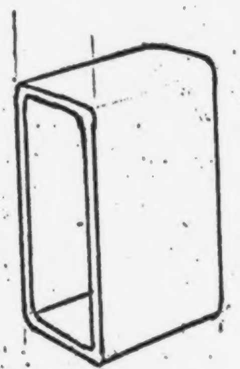


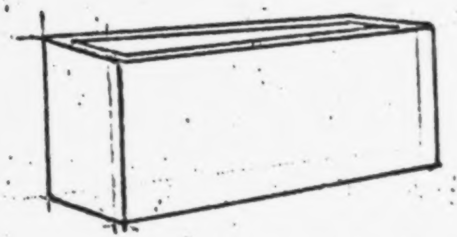
Another alternative, which is now in the development stage, is a modular solution made up of two parts. It should be available in prototype form in the fall of 1969 and in production in time for the first facility. It can be a table:



with a rough surface to stand on or to prevent slipping along a carpet and a smooth surface for writing.

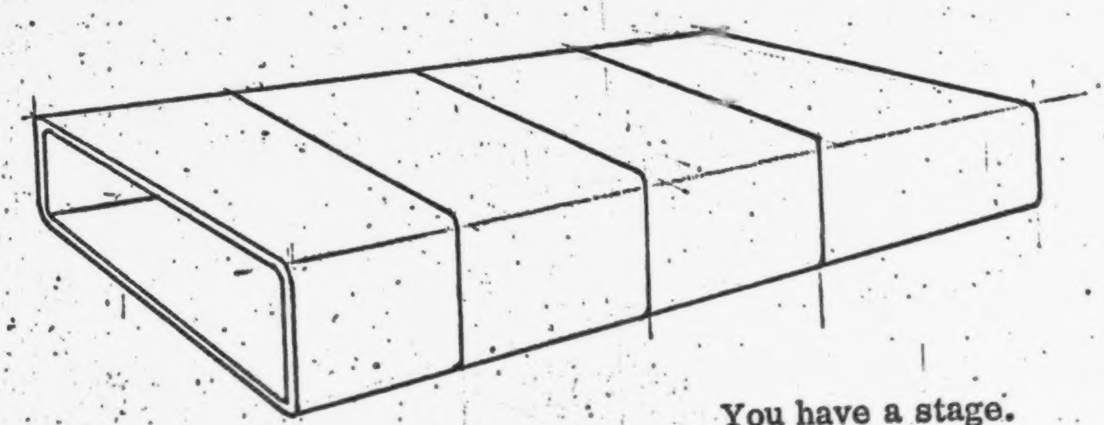
If you turn it on end or on its side:





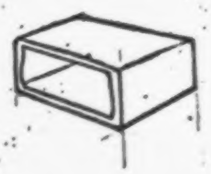
it is an excellent space divider or projection screen.

If you put several together:

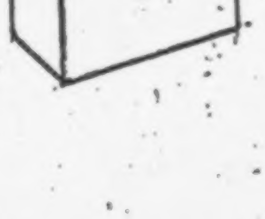


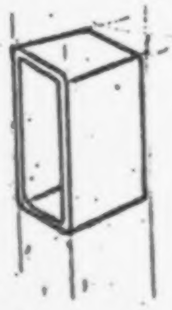
You have a stage.

The smaller of this component is a stool:

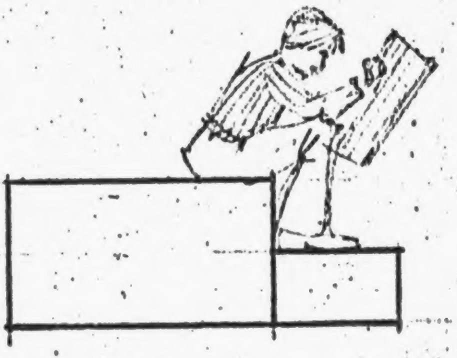


which can be set up many ways for different heights:

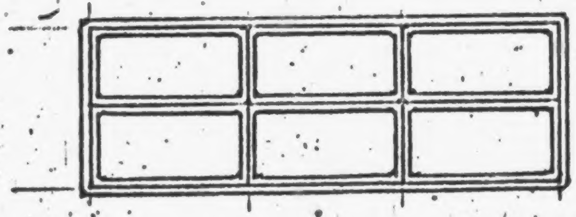




This small unit can be used with the table:



and six small ones can be stored in one large one:

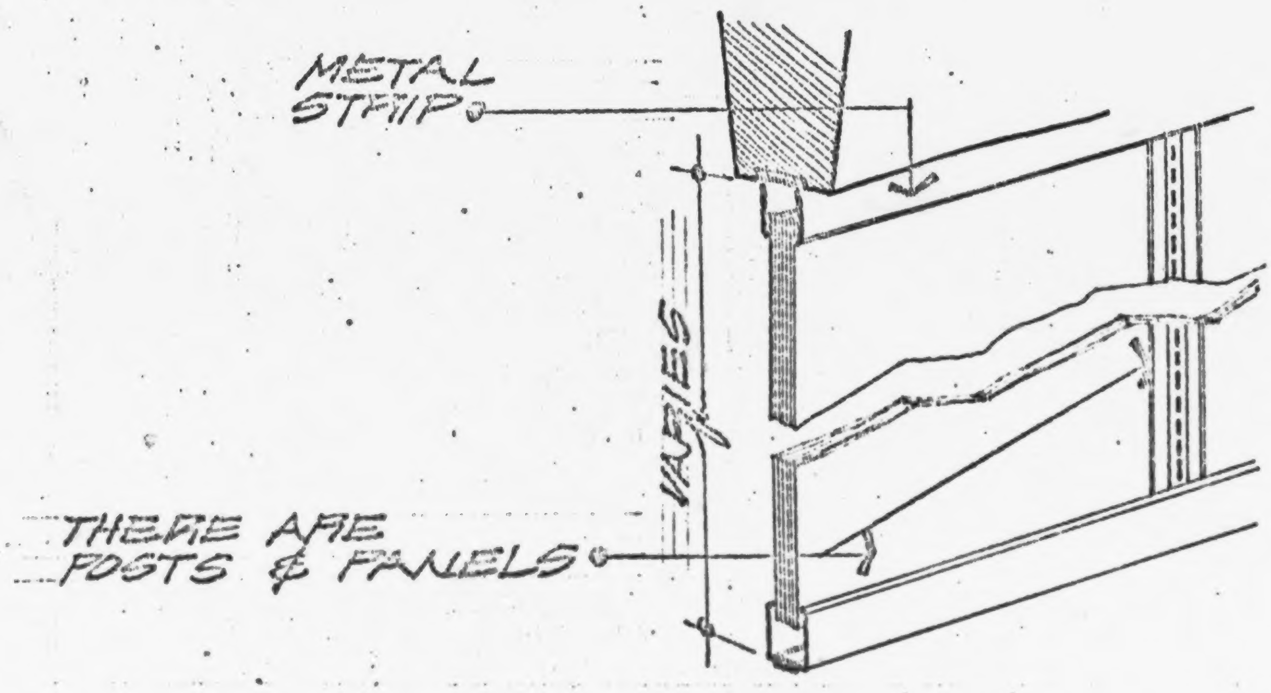


These products serve as desks and chairs and obviously can fill a variety of functions.

Demountable Partitions

The demountable floor to ceiling partitions should be used to accent and divide the general learning areas. Partitions sold by the Hauserman Company are specified for the facility.

These partitions require a metal strip to be installed at the bottom of the ceiling beams to hold the posts for the partitions. The grid ceiling is designed to hold this strip which can be installed permanently or changed periodically by the custodial staff. Once the strips are set in the ceiling, the installation of the partitions is simple.



"School Mates" - Carrels

These carrels designed by the Hauserman Company are similar in materials and design to Hauserman's "Action Wall". They are 50 to 70 inches high and can be arranged in numerous configurations. The carrels can hold the standard wall brackets and shelves used on the permanent and demountable partitions. They can simply divide space or they can be set up as desks or individual or small group project areas. The erection process is described on the opposite page.

COMMUNICATIONS SYSTEM

In traditional schools, various types of communications systems are used. These include intercom and paging equipment, bells, clocks and other audio-video systems.

In the First Facility, General Learning recommends that these components be combined into a comprehensive intercommunications system. Two master systems, a random access intercom and a closed circuit television system, would form the backbone of the communications for the school. Other independent systems such as the bells and the public address system would be tied to the master systems in a way that avoids unnecessary duplication of equipment and yet preserves the essential characteristics of the subsystems.

The Audio System

In concept, the audio design is an evolution of older intercommunication systems where users could talk to and from a central point. Through modern equipment, it is possible to set up much more complicated two-way communication systems between individual learning areas and the central office and between separate learning areas. Under the proposed system it should be possible to communicate privately by telephone and publicly by microphone and loud speaker.

For example, supervisors may talk privately or through speakers to various school areas. Teachers may talk to aides across a learning space or may talk to each other from one learning area to another. Or, the school principal may preempt all existing communication and talk to the entire school -- or to various zones in turn. Various program materials such as background music or taped information may be tied to the overall system at central or zone control points.

The basic equipment necessary for such a system includes two types of unit: control equipment at the central administrative office and selected zone stations (such as department offices or special activity areas) for relaying, switching, and monitoring communications to and from stations or groups of stations in that zone; and "field" equipment in the individual learning areas for selecting programs and receiving and transmitting communications to other areas. Outgoing calls usually go at the control station administratively associated with the learning area where they can terminate or be routed to other areas in the building.

A variety of program sources should be available. They should include: background music, "white noise" or background noise for the larger areas, an FM or broadcast tuner, output from an auditorium amplifier and materials from the local learning areas.

Closed Circuit Television

The closed circuit television system makes it possible to broadcast educational and selected commercial televisions to the learning areas and the community spaces. It also provides for the distribution of locally produced television material (made with television cameras or videotape recorders).

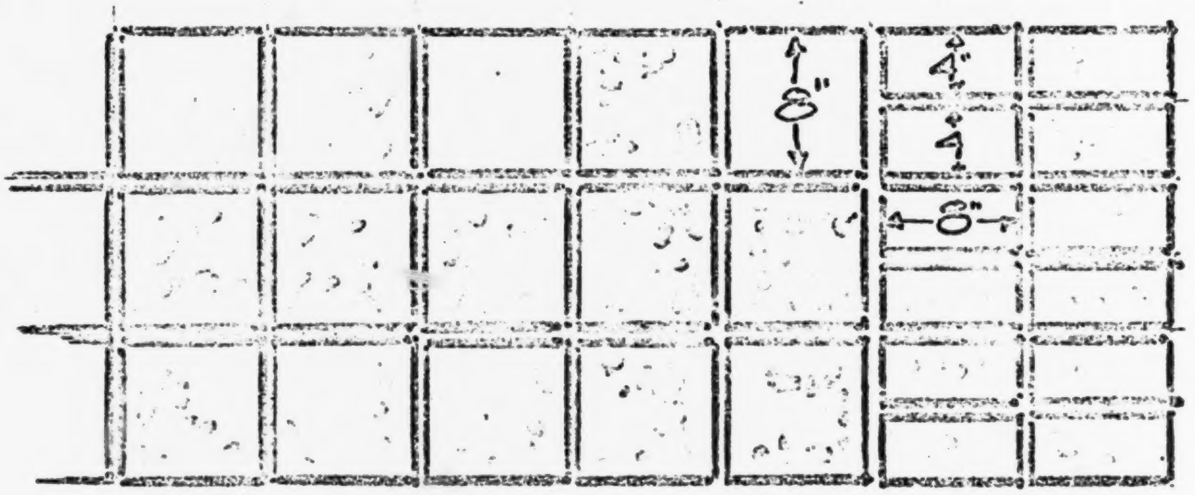
It is recommended that an underground cable with "CATV" be set up for the entire school system. Such a system would eliminate much of the need for masts and antennas on top of each school building and for special converters at each school to convert Channel 26 and future ITFS channels to standard VHF.

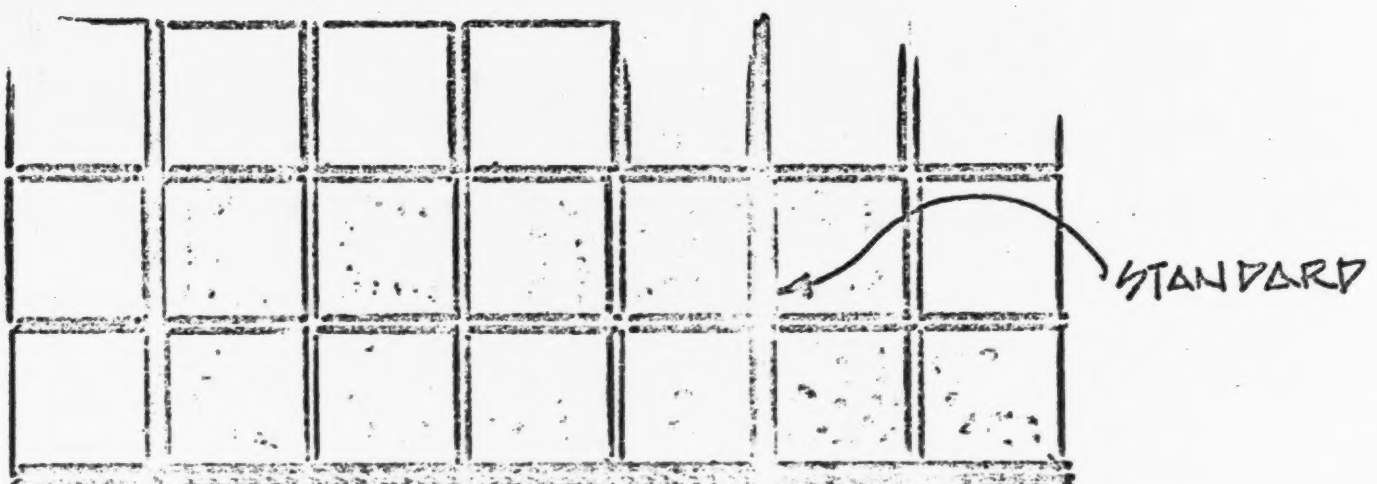
GRAPHICS

In our schools, as in our daily life, mediocre design at every level has become the accepted convention. Nowhere is this more evident than in the use of graphics and color in our public school system. Graphics is herein defined as signs of every shape, size and color as related to both the design of the school spaces and the signs used within. It is only in the last few years, in fact, that the use of both color, and graphics in schools has begun to be studied as a learning tool for educational and environmental objectives.

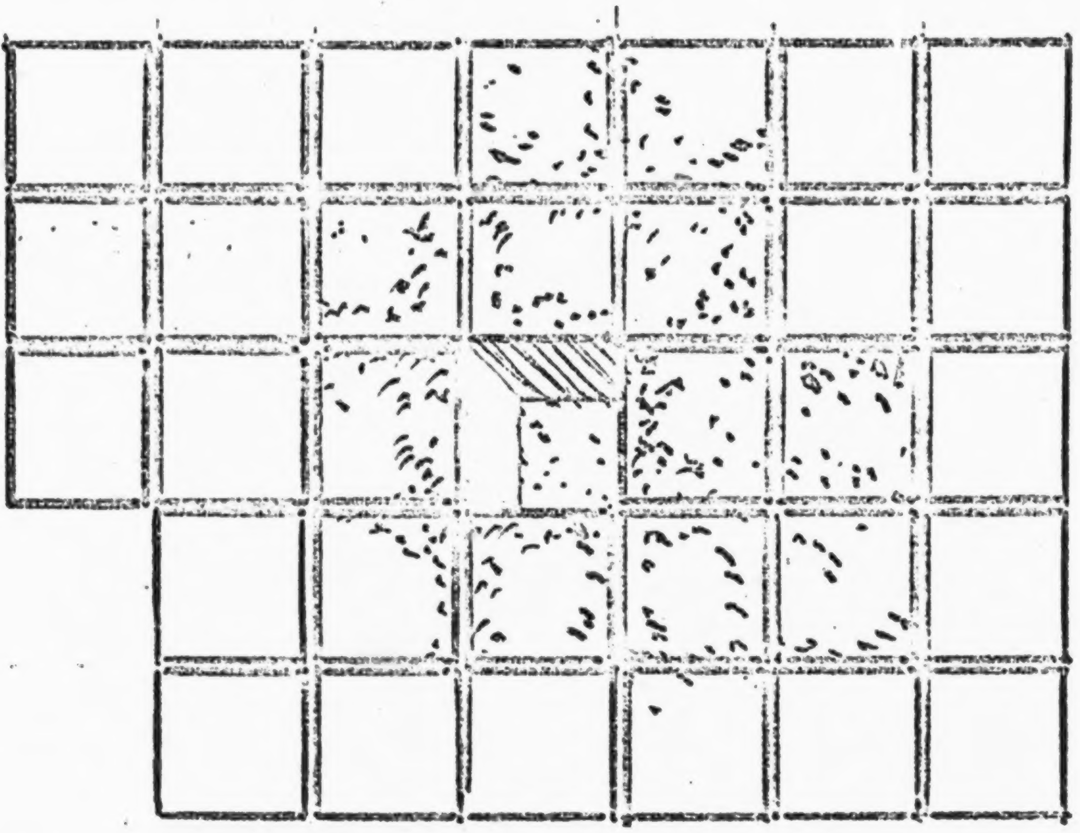
The current concept is that a sign -- any sign -- can be more than a directional stimulus. All signs fall into two general groups. One, abstract graphic indicators, the other, verbal graphic indicators. Both can be conceptual as well, teaching a lesson as they chart a course. They can be flexible, allowing the child to manipulate and change them to meet new needs or functions. In its use of color a graphic indicator has a double-barreled approach, teaching relationships in space between areas coded by color. Finally, it need not be a sign at all but merely an idea or concept employed graphically.

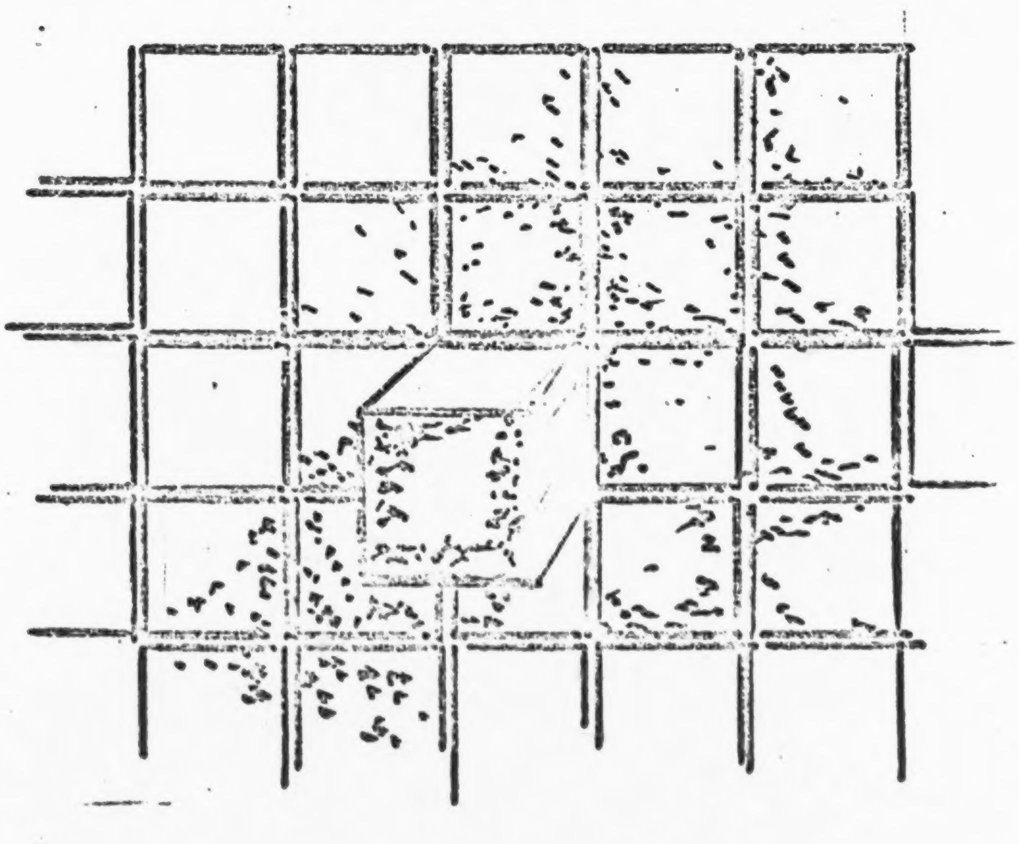
It is the scope of this report to outline and illustrate a program of graphics and color in relation to a prototype school situation, in this case the Fort Lincoln First Facility in Washington D. C. . The types of graphic hardware and software as well as the relationship of graphics to color in architectural finishes and the function and furnishings specified will be explored.




STANDARD
SHELF

3a





3b

A. Graphic Hardware

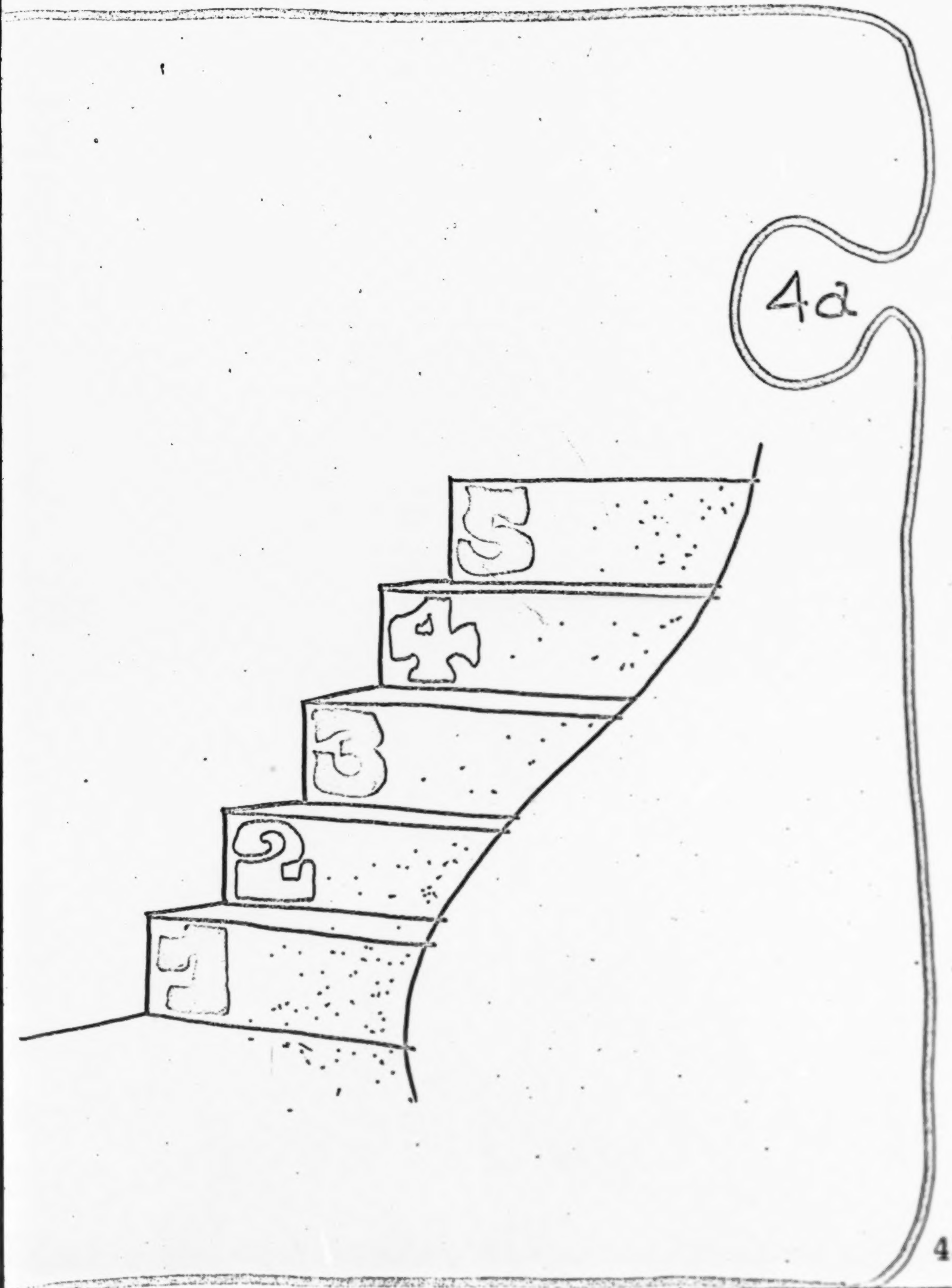
Signs or graphics can be divided into two general groups, one loosely defined as directional and the other as conceptual. It is also generally true that the directional sign is often permanent, while the conceptual may be variable and flexible.

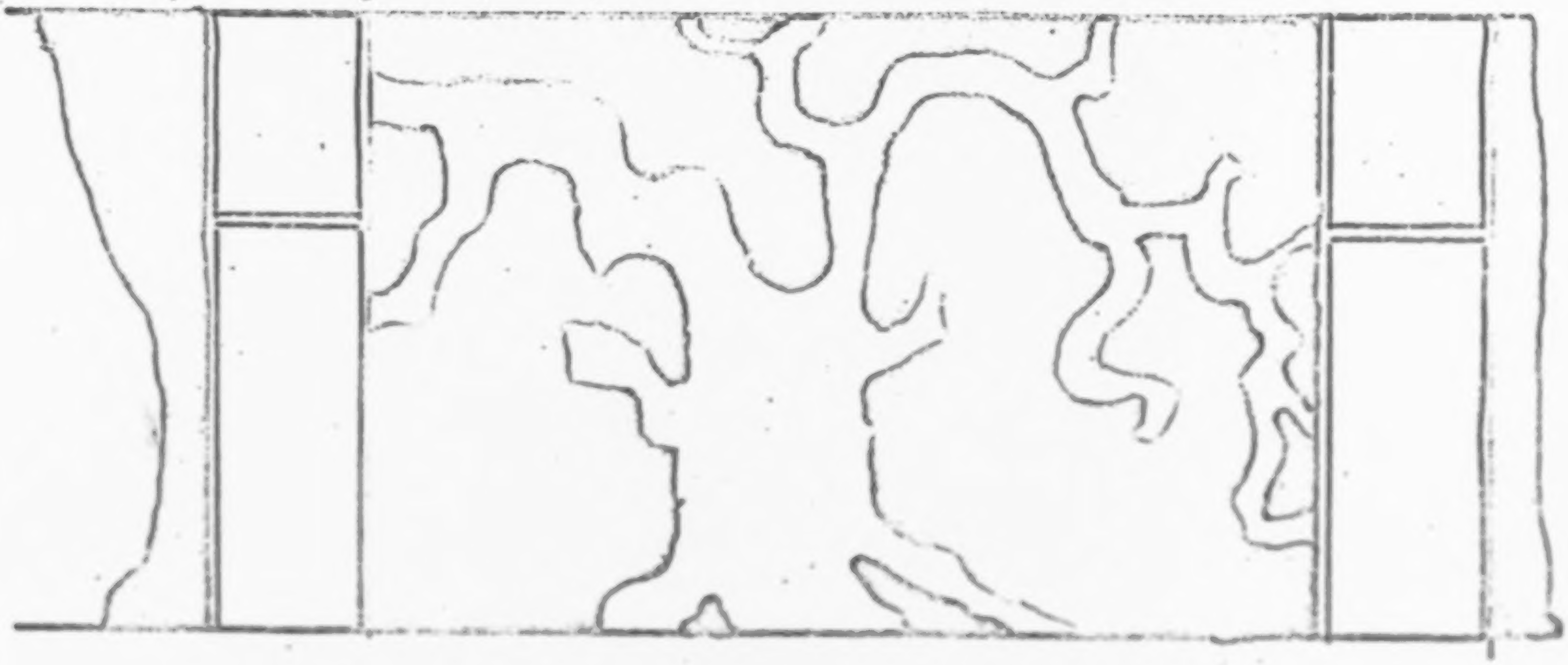
However, it is also true that in conventional schools the very permanence of directional graphics is a negative, stultifying factor, making it difficult to achieve flexible or varying use of spaces. How then can directional graphics change or be changed by children? Perhaps the goal should be a continuous graphic redefinition of space.

Some examples can be helpful. In the First Facility, for example, the basic building materials are modular---brick and concrete blocks, each having its own characteristic dimensions which are related by multiples of 4. It is easy to see how this module, though permanently embedded in mortar, can be redefined by its dimensional characteristic.

For instance, in the First Facility, the block is arranged in 4' modules punctuated vertically by slotted standards designed to support shelves and other accessories. (Illustration 3a)

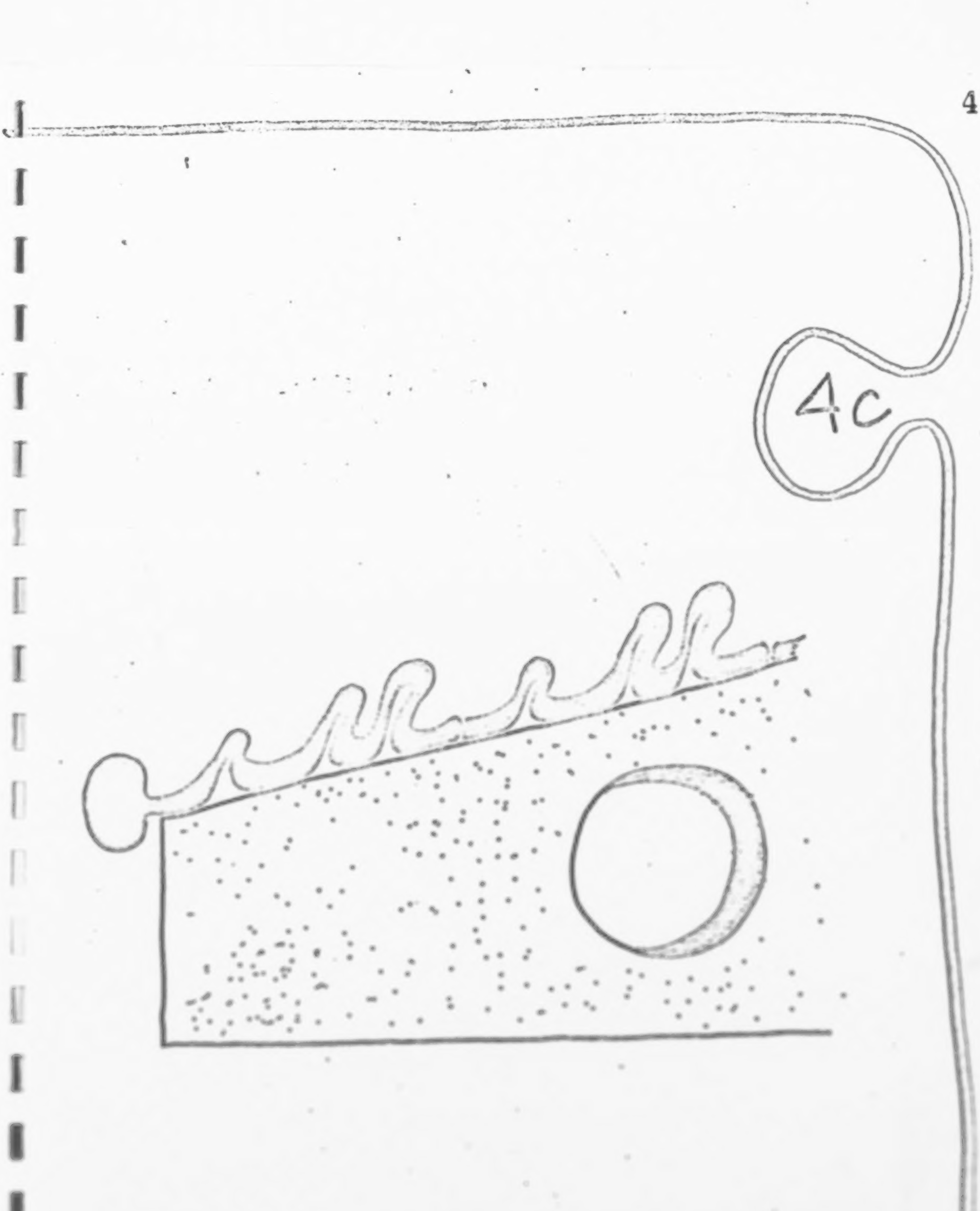
By painting or coloring these modules of 8" and 16" in series or sets, it is possible to demonstrate or simply allow the child to figure out relationships by number and color. Indeed, if a block were to be omitted from time to time or another to protrude, (Illustration 3b), it is almost possible to see the progress of a child's thought from concrete experience to a high level of abstraction. The same procedure, of course, could


4a
5
4
3
2
1



Note: Autograph Tree to be
made of cork or wood
applied to wall surface

4b



Note: "crawl-through" in ramp can demonstrate relation of levels be used with brick. In fact, any type of masonry screen, properly located and colored, can be a challenging lesson. (Illustration 3c)

Going further into the development of graphics contained within the architectural structure, would it not also be possible to use the modular quality of steps?

Possible uses for steps include the following:

As seats -- the addition of a soft surface such as carpet can easily convert a step into a chair; as numbers -- numerical symbols can be run up or down a series of steps; as an experience in space -- risers, color coded to relate to the space below or above, can provide the child of 4 or 6 with the kind of experience he needs to understand transitions in levels. (Illustration 4a)

On the other hand, to show how the school is built, a graphic illustration would be a cut-away or glass partition showing structure or plumbing or wiring behind walls; or to have differing ceiling heights appropriate to children of varying age and sizes; or, to allow the child to make his mark on the school, a giant autograph book or carving tree could be created in selected areas where the material and location would make carving names and initials irresistible. (Illustration 4b)

The kinesthetic and textural aspects of the architectural space can be explored further as well. In the First Facility, where a ramp connects the two walls, would it be possible to make the railing in ripples instead of conventionally straight? It would be almost as much fun as running a stick against a series of posts to be able to run up or down a ramp with a rippling rail. Modern plastic rails can be molded into any shape required to create this form. (Illustration 4c)

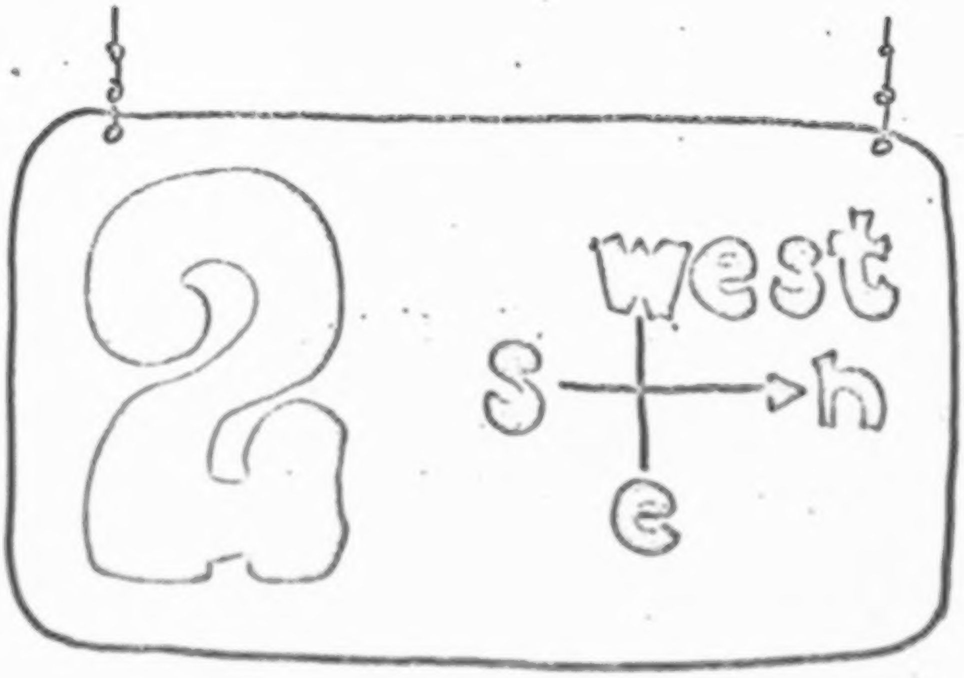
Different flooring surfaces should also be explored. Going from a rough pebble texture to a smooth resilient flooring to the softness of carpet can be a conceptual tool. If the color, shape and size of textures used are approximate to the activity in the area, a conceptual abstraction can be learned.

But in schools, as in hospitals, office buildings, hotels and almost any non-residential area, graphics are used to indicate locations in a very real sense. In the First Facility, as for any new school, it would be desirable to use directional indicators that could be changed easily and without any great expense.

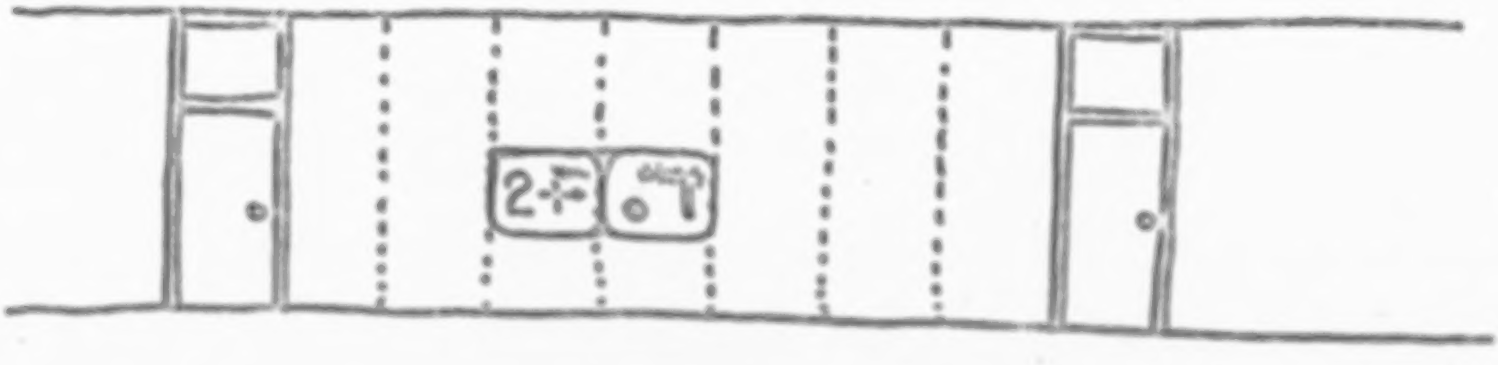
A modular sign pattern, with pre-finished board of differing sizes, could be hung by pre-drilled holes on hooks fixed into both the walls and the ceilings. The wall signs could be opaque while the hanging signs could be made of transparent plexiglas. The signs would indicate room or function or direction as needed. (Illustration 5a) More than one sign could be combined: when the need for change in room function or direction was required, other signs could replace these, or be exchanged for those in reciprocal areas. This would prevent the unsightly sign-upon-sign so often seen in schools where changing room functions are common.

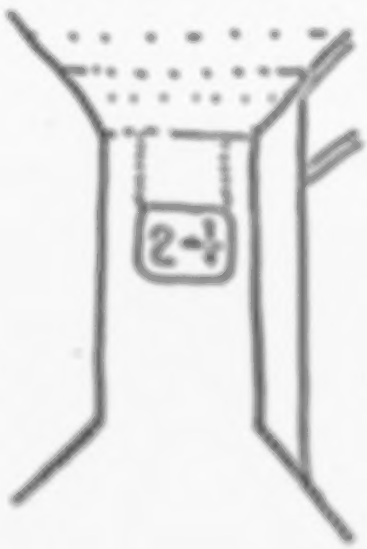
Many types of conventional signs can be totally eliminated. Bathrooms, for example, can be indicated by a constant color for boys or girls, by a special template fitted to the doorknob (Illustration 5b), or by a push plate in a characteristic color.

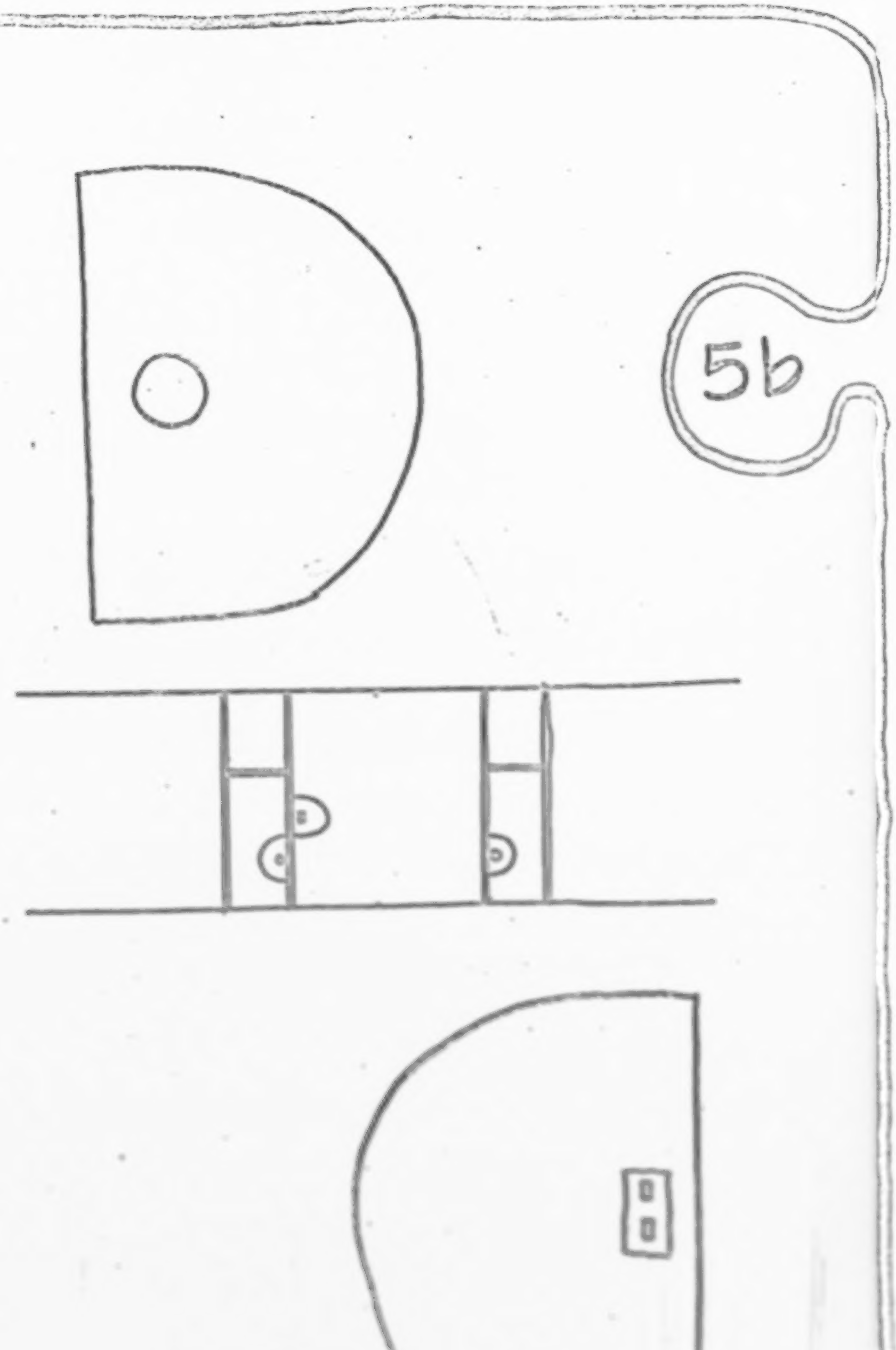
This is not to say that some verbal indicators should not be permanent. No one ever moves a pool or a gymnasium or a staircase, for instance; but the visual indicator of these spaces, though permanent, need not be conventional. (Illustration 6a) And,



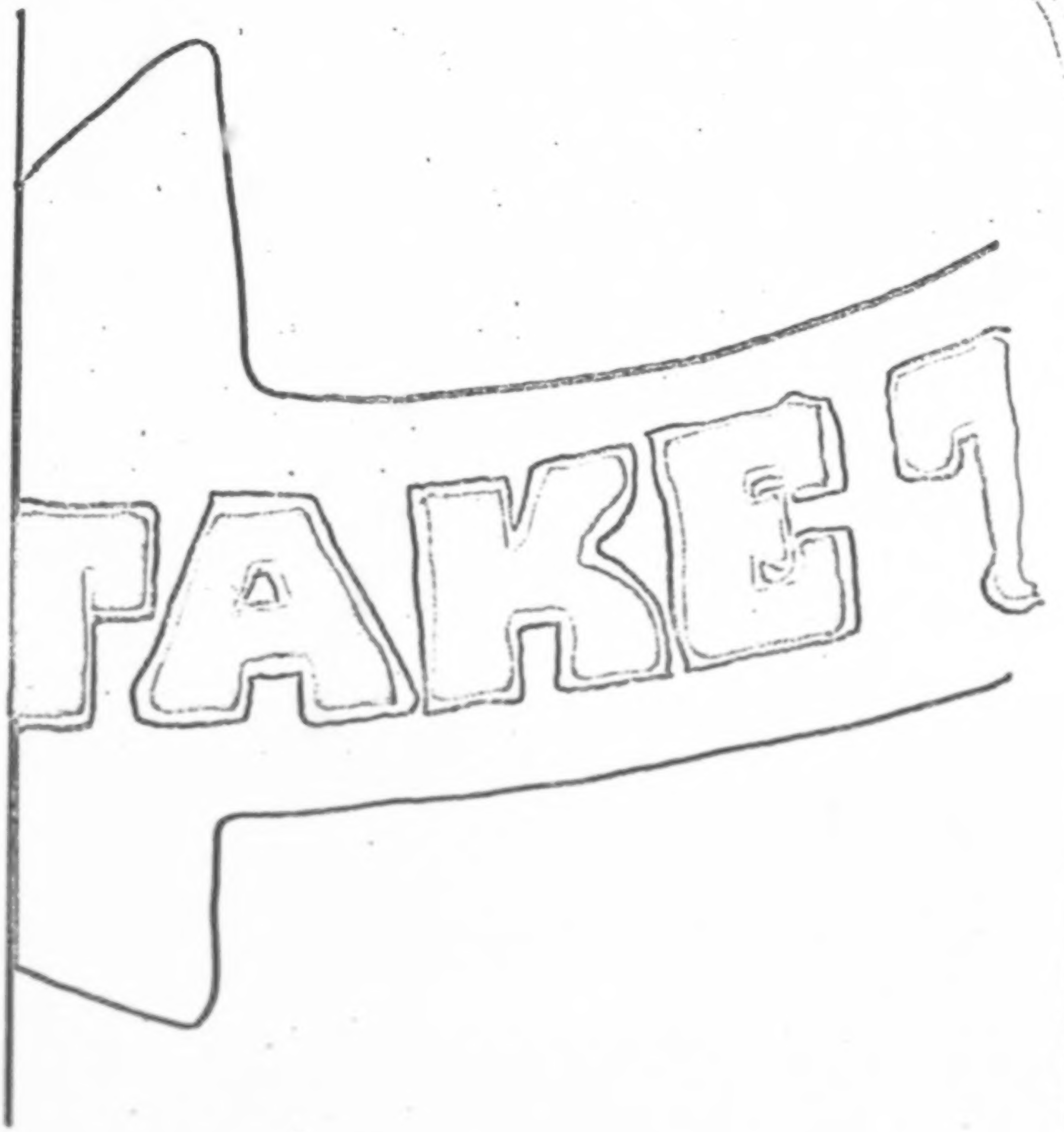
5a

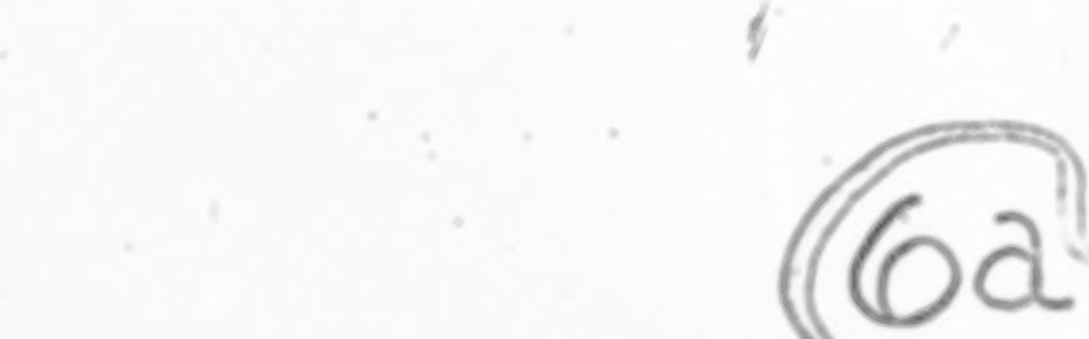




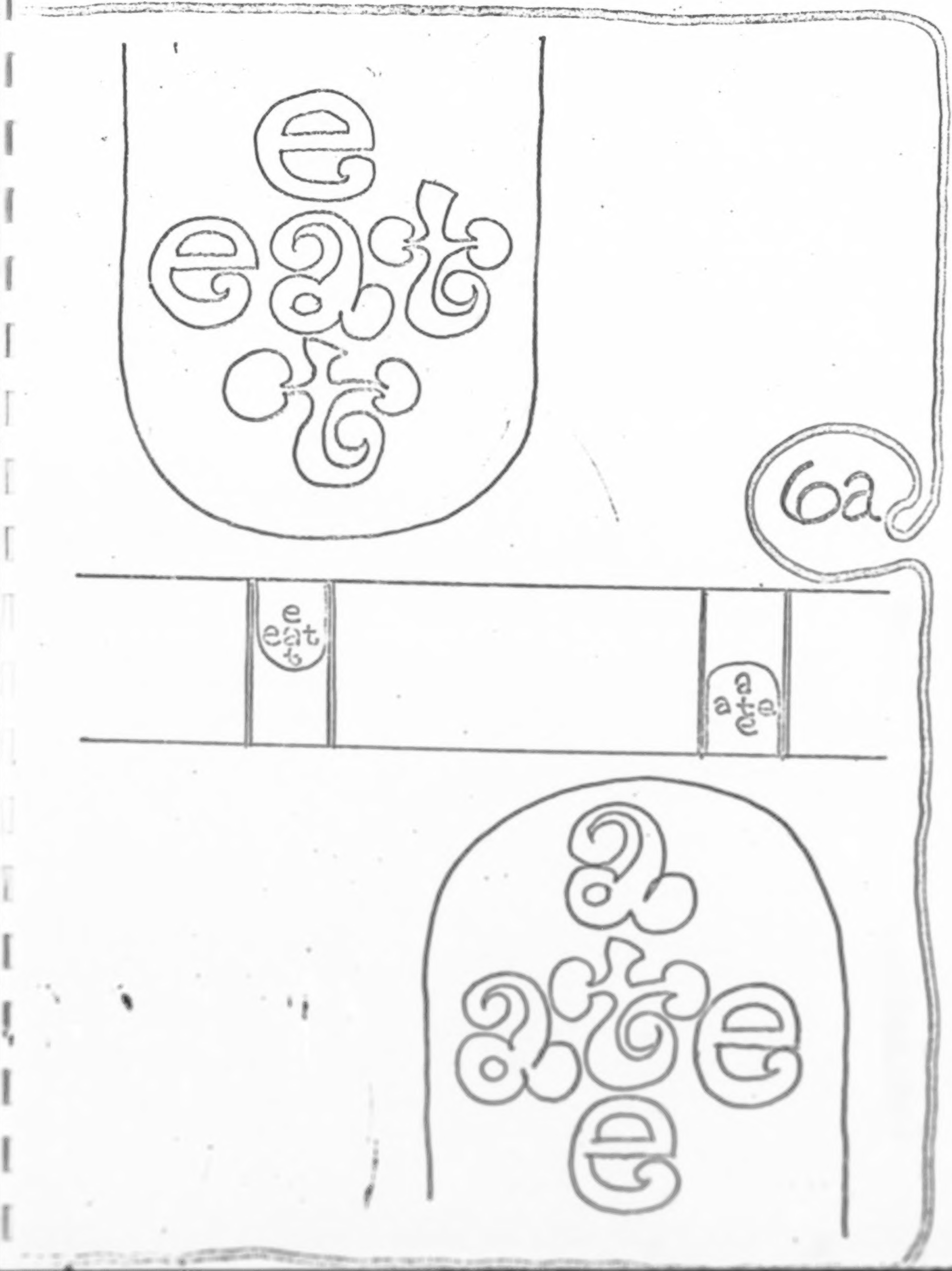


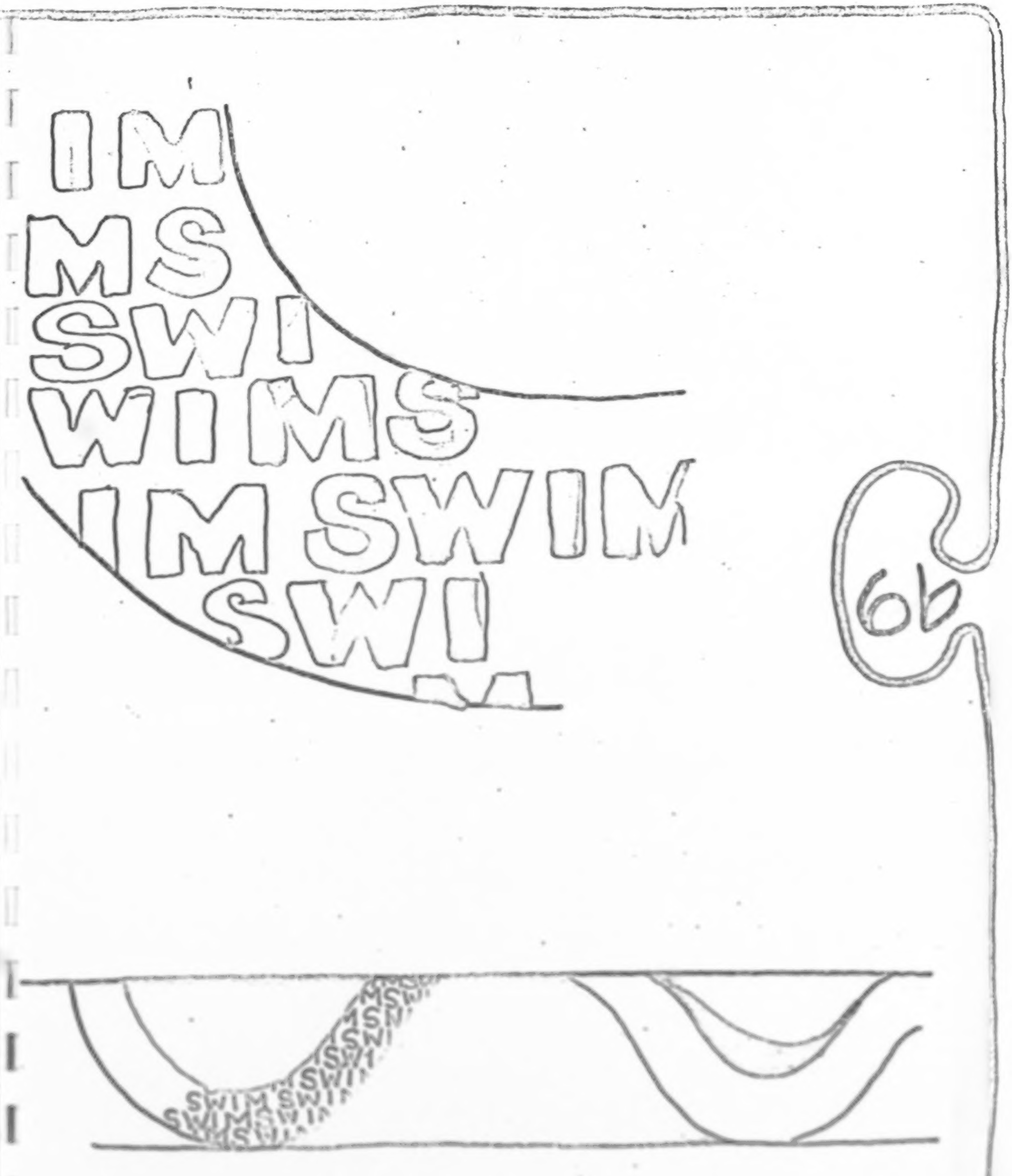
Note: specific color templates can indicate function - as for lavatories, lightswitches, etc.




TAKE THE RED STAIRS

6a


6a


IM
MS
SWI
WIMS
IM SWIM
SWI
6b
MSW
MSWI
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SWIMSWI
SWIMSWI

in planning these, it is important to relate the color to the space indicated. A blue sign indicating a pool is appropriate; a red sign would be an inaccurate abstraction. Similarly, an indicator must also relate to the function. Swimming, for instance, creates movement of water; the sign can indicate this creating waves as well. (Illustration 6b) Finally, a permanent indicator must also relate to the place on which it occurs. In color, it must relate as part of the overall color scheme; it can also relate to the very material on which it is applied. In the First Facility it can be created of the module of the block, once again emphasizing the abstract concept of the numbers. (Illustration 3a)

B. Graphic Software

The other half of any school graphics program can also be roughly divided into two groups: those included in the graphics contract and those included as equipment. Both groups can be characterized as temporary, flexible and variable.

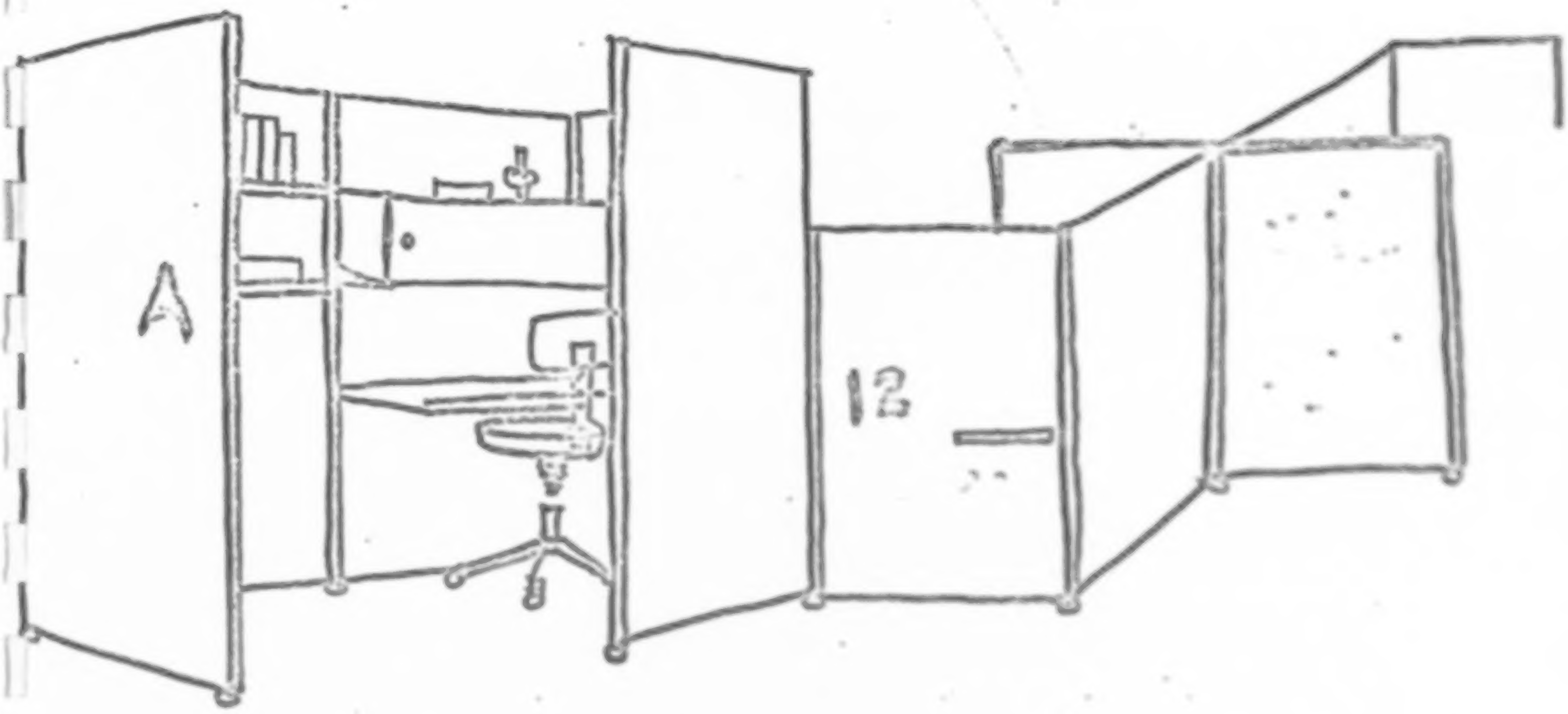
Those that can be included in the graphics contract can readily be identified by relation to the performance requirements of the age group they serve.

In the earliest years, between three and five, children have a basic need to explore coupled with a high level of physical activity. A graphic environment rich in variety, color and content can be developed so that the non-reader can make his way easily about the school. The entire graphics program should be flexible and rotatable. Mirrors, for example, can be fitted into the modular pattern of either the concrete block walls or the demountable partitions put to use in the equipment program. Mirrors can show reflectivity; concave and convex mirrors can be educational while also being fun.

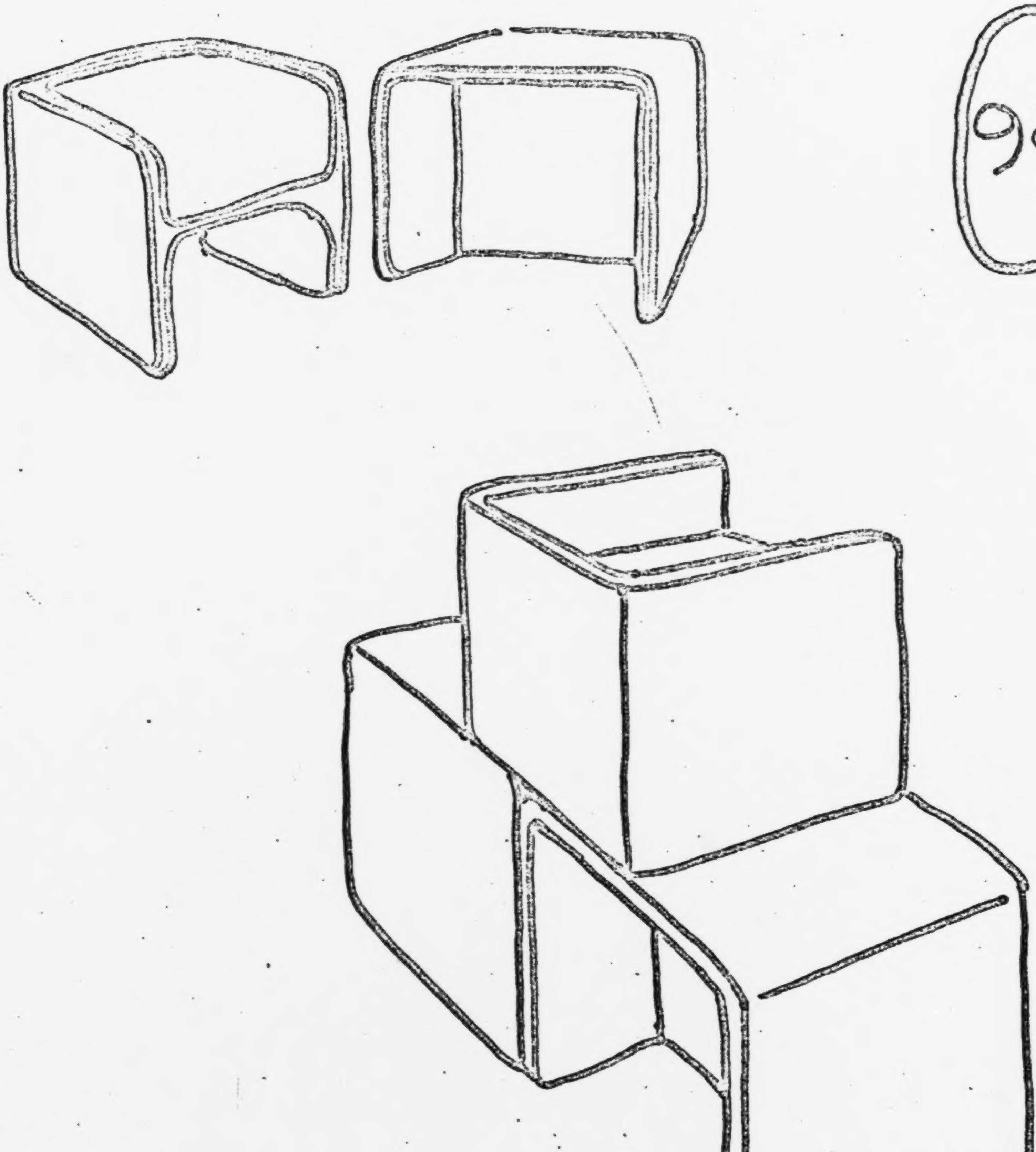
Magnetic chalkboard can be an important element in the graphic program. A large assortment of accessories can make these magnetized surfaces into meaningful graphics: magnets in different sizes or shapes to manipulate into changing patterns, sheet or magnetized paper for instant collages, three-dimensional magnets to illustrate abstract relationships of space. "Chalk", made of water soluble magic markers, can be used as paint brushes on these surfaces as well and animation can be projected, making use of them as screens, with slide or movie projectors.

Other modular equipment, in the form of interlocking cubes for example, can be used to relate floor to ceiling in easy stages. In the First Facility, where the ceilings are eleven feet high, it would be a very easy learning experience to teach a child that by a given module he can progress from being "three to five" to being "five to seven" or even "seven to nine" or "nine to twelve". (Illustration 8a) For the young reader in the next group, ages five to seven, a more structured and sophisticated environment is needed. These children are capable of longer attention spans and the need to integrate numerical exercises with reading lessons can be aided and abetted by the graphics program devised.

The modular partition system, for example, can be used as it is with the younger group, but its scope greatly enlarged. Magnetic shapes can be used as map-making devices to show far-away places or even to show how the school itself is designed with inter-relating areas which can be easily transferred into lessons in spatial relationships. Increased participation by the children in using slide techniques to make color and shape changes can be an important lesson in learning color values.



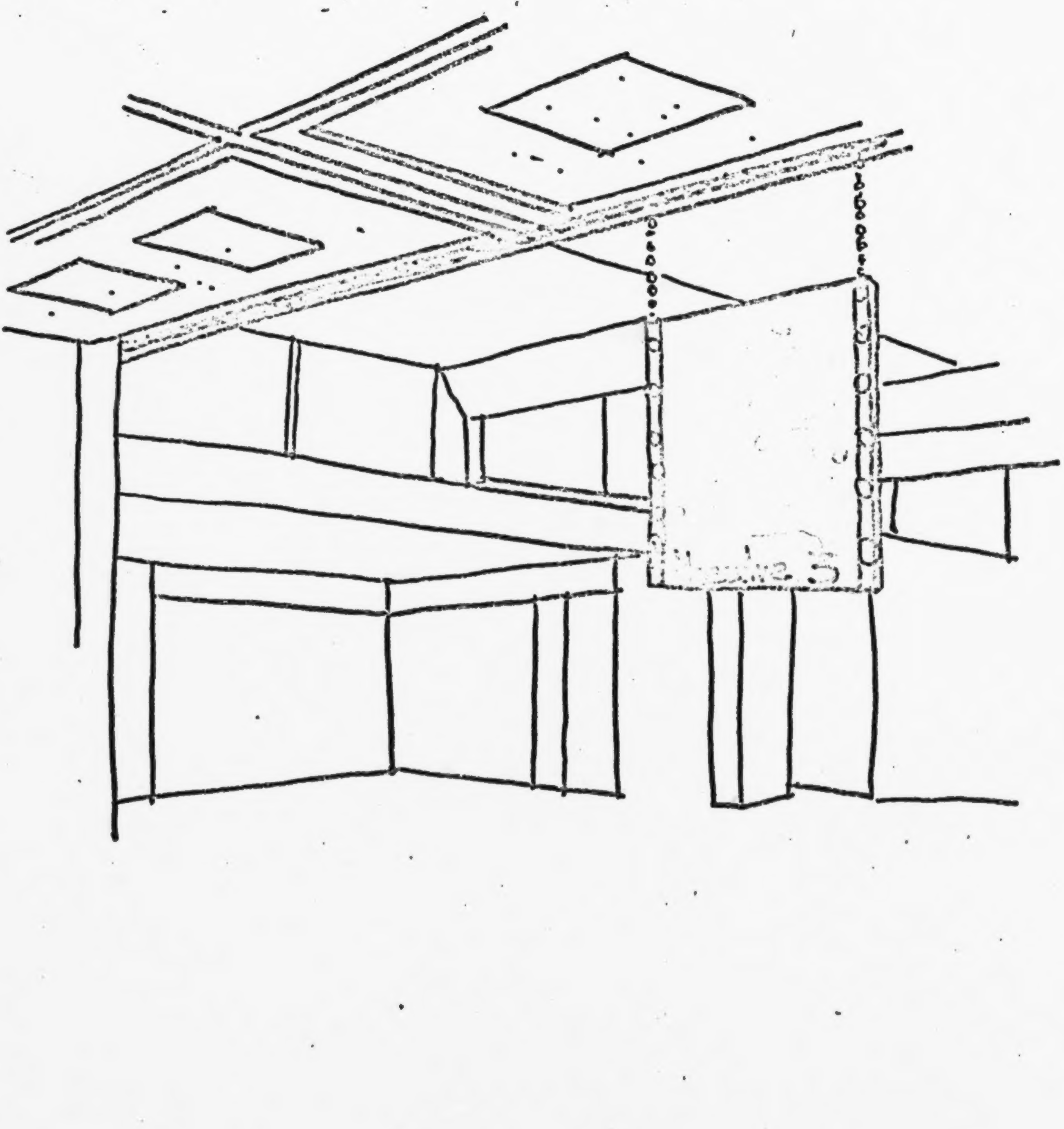
8a



9a

2

9b

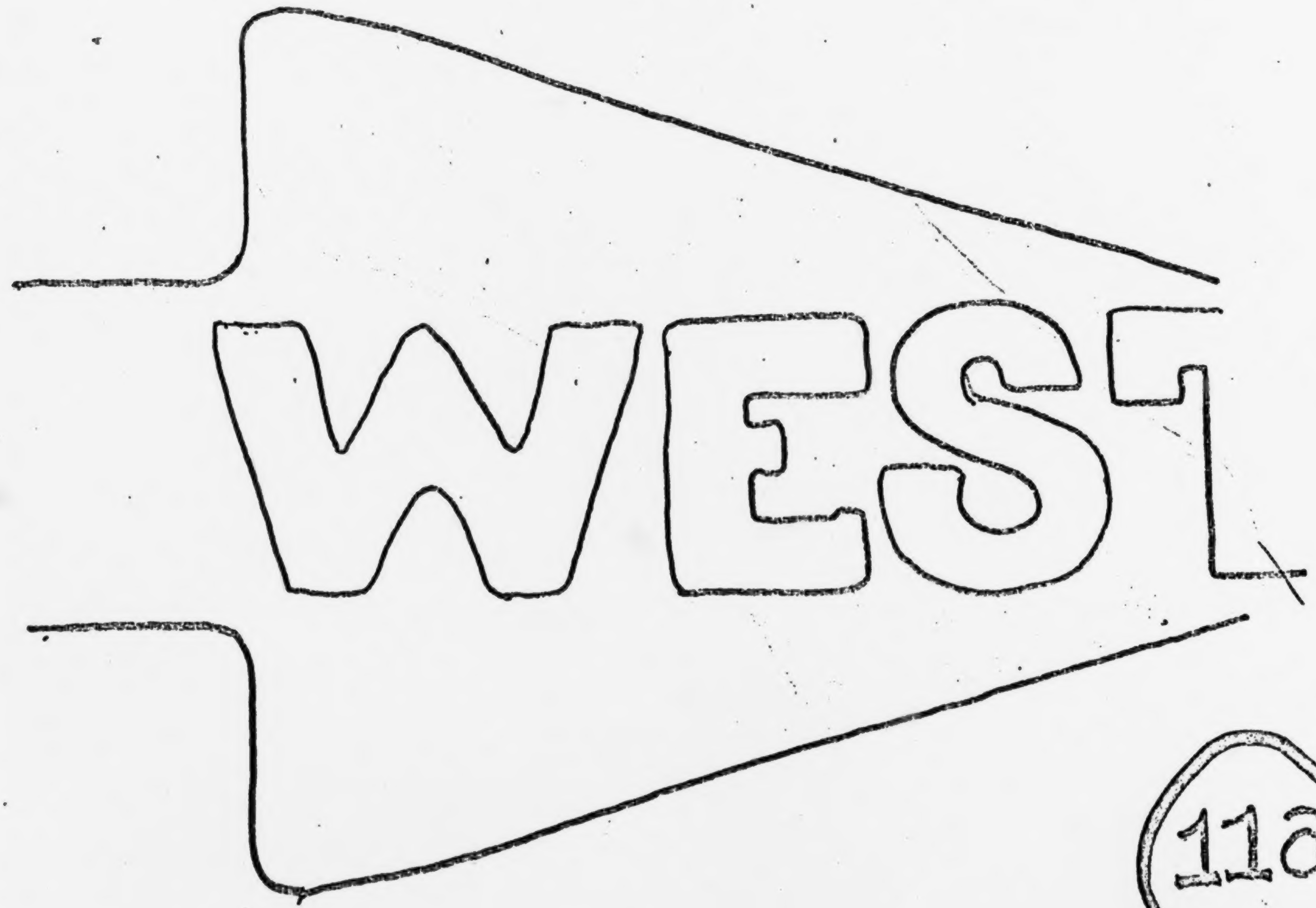


Directional graphics within these areas can be made by the children themselves, attached to magnetic surfaces and hung from pre-fixed hooks in the ceiling. (Illustration 5a) Furniture for this group should, of course, be scaled to the age. But because of the modular units, high and low groups can be created; it must still be flexible enough to be easily rearranged into new patterns of function and color by the children themselves, relating to the other modular concepts of the building in both scale and color. A cube which can be both a chair and a table can become a much more complex environment through the easy grouping of many such cubes. (Illustration 6 9b)

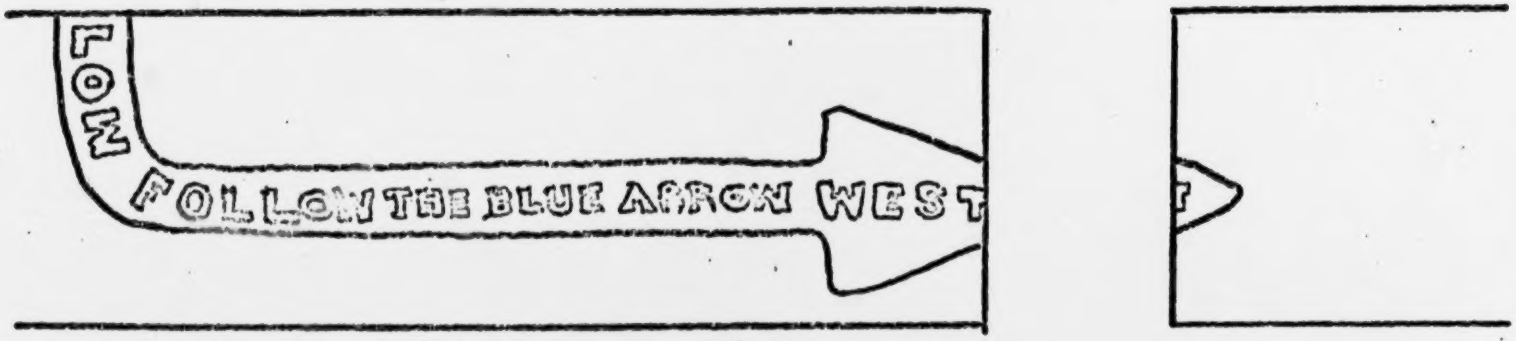
For children from seven to twelve, arithmetic and discipline can be stressed to develop a numerical sense and a concept of probability and statistics by the whole physical structure of the learning spaces.

The three-dimensional qualities of much of the equipment, from the modular partitions to the concrete block construction to the tables and chairs themselves lend themselves to geometric and algebraic expressions. The partition system, based on a ten foot module, for example, can incorporate its own modular properties in storage, carrels and display systems. Tracks in the ceilings allow panels to be hung at right angles to walls (Illustration 9b) to illustrate divisions in three dimensions, and rods inserted into the slotted standards on the concrete block walls can be fitted to extend still another dimension in space.

Increased student participation in the design and execution of graphics can help develop a more refined sense of space and environment as well. In the all-purpose "music room", seniors could have the project of projecting their own group feelings



11a


LOW
FOLLOW THE BLUE ARROW WEST

Note: color code for east-west axis
can continue around corners

about space. Working in teams with projections, paints, collage papers or any medium, they could totally change the "space concept" on walls purposely left unadorned.

School displays relating subject matter to the community needs or to subjects under study could be another project program for the older children. Shelves or display cases of various materials modularized for the 4' spacing of standards should be used. Stencils using letter or number cut-outs could be provided for this group, allowing them to rearrange or redesignate spaces as they wish within their own learning areas as well as to illustrate the concepts they are studying.

C. Color

In any school, color is an integral and vital part of the graphics program. It is related to the overall graphic concept in three general areas: function, finish and furnishings -- the three "f's" of the graphic panorama.

Function is, obviously, the heart of any graphic concept. Color can also relate to the physical orientation of the entire building by being used in its relation to an axis. For instance, the East Section of the First Facility is red and the West Section is blue. In accompanying signs, then, these key colors are repeated, showing where you are and how to get there. These colors relate to an east-west axis. (Illustration 11a)

Color continuity can be a guiding factor in location in other non-verbal ways. Certain colors, for example, can always denote function, such as red meaning exit, blue or yellow or green meaning something else. In the First Facility, each age group has its own characteristic set of colors, but the connections between age groups can provide color continuity in a common color used for floors or non-accent walls.

Colors can be tagged verbally as well to indicate function. A stairwell cutting through two levels can be labeled by its color, or a special function space, such as a pool or gymnasium, can be color coded individually since these spaces are unique.

Color in relation to finish can also be a meaningful experience in the daily routine of a child. Texture -- or the lack of it -- can be accentuated by color; the roughness of concrete block painted bright blue, for instance, contrasted with the smooth cool whiteness of a metal partition can be a big change for a small child. Similarly, color properly allocated to finishes can create the optimum environment for young eyes. If colors are specified so that equipment is integrated with the color of the finishes in the prime contract, a genuine color pattern can be created -- and instantly recognized by the child.

In the same way, color choices in furnishings must be related to the color code of the school. Lockers, partitions, chairs, tables -- all these must have their own predetermined place in the school, carrying to still another degree the implicit graphic lessons involved.

The graphics should be flexibly planned so that all the graphics can be used by more than one age group. They must be color coded so that the students and teachers can manipulate total space. Finally, they must be considered as an essential part of the modern school environment.

EXTERIOR ENVIRONMENT

A stated goal for the Fort Lincoln school system is that the learning environment should not be limited to a single physical structure. Instead, the educational program should be expanded to include the immediate surroundings, the community and the city. The school staff and the students must draw upon the resources of the new town, the 335-acre site, the surrounding communities in northeast Washington and Metropolitan Washington as a whole.

Thus the exterior environment of the First Facility, the outside of the building as well as the entire 335-acre site, offers unlimited possibilities for learning. Many of these projects and studies should be incorporated into the regular academic courses such as science and math; others can be used for separate studies in ecology.

Recommendations for two areas, the outdoor play area and the roof area, are described below. The list is far from complete. Instead, the activities continually ought to be redefined and reinterpreted by the school staff and students to meet existing needs and interests.

The recommendations in this section were prepared by the Environment Science Center of Golden Valley, Minnesota. The Center, under the direction of B. B. Clark, C. E. Vogt and M. J. Naylon, is funded by the U. S. Office of Education. The entire text is included in the appendix.

Pre-School and Kindergarten Outdoor Play Areas

General emphasis in these grades is on school on one hand and on family and the "home and shelter" concept on the other. Provision should be made in the outdoor play area for structures which could represent home and shelter. One might conform to the square or rectilinear nature of traditional structures. Another could be curved, domed or cylindrical.

Roof Areas

Wall and roof surfaces near the planetarium could be used to reinforce the concept of size, distance, and even the universe through graphic representations of the solar system and the planets.

A solar activity area enclosed by vertical, translucent panels allowing sunlight to pass through could be used for several purposes. In science classes, maps of solar movement could be made and calculations of the angle of light as the sun moves could be measured by tracking lines of light in the plastic panels. The area also could be used for dramatic presentations as well as classroom space.

A micro-climate planter is designed as a science resource center for the study of micro-climate and solar orientation in relation to plant growth. It is placed on wheels and has a changeable angle to permit for slope severity studies and north-south orientation micro-climates. The planter has been compartmentalized to decrease soil erosion and allow space for a number of different plants.

Additional plants and vegetation can be grown in the planters on the edge of the roof. These plants could be used by science classes and provide materials such as seeds for a seed mosaics or serve as models for sketches or paintings for art classes.

A large stream box containing sand, gravel and water could also be designed for the roof. The effects of wind and rain can be examined in the sand. The water source can be used to create streams for a variety of experiments. Dams, artificial barriers and minatures such as of the Anacostia River Valley can be constructed to explore how moving water affects the landscape.

The air conditioning unit can be used to study heating, cooling and condensation. Similarly, other functional units throughout the building could be used for instructional purposes.

Finally, the open ares on the roof could be used for study, work projects and experiments. For instance, children could measure air pollution and pollen dispersion of air borne algae and fungus spores by setting up petroleum jelly covered slides and checking regularly for algae and fungus growth. Or, wind and turbulence patterns on the corners of the roof could be studied and mapped on graph paper.

IMPLEMENTATION

Setting up a facility such as this which is designed around the most innovative ideas in education and architecture is a difficult job. Coordination between parts is essential during the implementation stage and after the building is in use.

New equipment and materials which are compatible with the educational system and building design have been specified, A change in any one component, either in the building design or in the equipment, could necessitate changes in the other components. For instance, the flexible, open-plan for the four stages of the First Facility demands the use of carrels and demountable partitions to divide up the space. If the compatibility between the building and the equipment is not maintained, if the carrels are not used, the flexibility and the success of the facility will be sharply reduced.

The implementation should be directed by a group of individuals of different professions and from different departments in the District school system. The group set up by the Special Projects Division, should include representatives from the District's Building and Grounds, Equipment, Furnishings, and Budgeting departments.

The group could become a permanent committee for all schools designed on the space concept. They should establish and maintain contact with suppliers to purchase the special equipment. Ordering in bulk for many schools at once, they could be in a position to effect the design and development of new products and new procedures for the open space schools of the future.

When the facility is completed,the maintenance staff will have to continue the activities that are initiated by the above group. The concept that a facility can be maintained daily by the users requires a very different attitude on the part of maintenance staff.

The staff should include: a designer to help the teachers and students create new and varied space configurations; a facilitator to advise the school population about what equipment is available and how to obtain it; and a member who is mechanically oriented to construct the partitions systems. Above all, all of the staff must be eager to work with the staff and children so that the physical aspects of the facility continue to be used as educational tools!

FIRST FACILITY
UTILIZATION MANUAL

A Teachers Guide To The Use Of The FLNT Elementary School

Prepared By:

The Environments Group
EDUCATIONAL SERVICES DIVISION
General Learning Corporation

October 7, 1969

TABLE OF CONTENTS

Page

I. INTRODUCTION

II. INTERIOR DESIGN

  A. Level Below Plaza
  B. Plaza Level
  C. Stage One
  D. Stage Two
  E. Stage Three and Four
  F. Above Plaza Level - Center
  G. Mezzanine
  H. Flexible Features
  I. Communications Systems

III. GRAPHICS

  A. Introduction
  B. Graphic Hardware
  C. Graphic Software
  D. Color

IV. EXTERIOR ENVIRONMENT

V. IMPLEMENTATION

VI. APPENDIX

  A. Equipment List

INTRODUCTION

The design for the FLNT First Facility, which has a capacity of 700 students from age 3 through age 12, has been completed and contractors will start construction in a number of weeks. A document on the facility containing preliminary specifications was published in April, 1969, to provide the architect with information describing a "new and relevant system of education" for the new town. This document is a revision of the preliminary specifications. It will be in a format which addresses itself to the teachers, administrators, students and townspeople who will be using the facility.

The first facility was designed by Louis B. Fry, of Fry and Welch Architects, as a building which not only accepts change, but one which _expects_ change. The interior of this building is made up of components which can be erected and altered by any adult. Many features can be manipulated by the students and some can be changed by the smallest child. It is a structure which will not be complete until the staff has positioned the interior partitions during the implementation of the educational program. The facility is a tool, in the same way that a movie projector or blackboard is a tool, to be used by the participants to mold a program, to activate young minds, to encourage insights into the organization of space and to make the environment an active element in primary education.

When one thinks of the traditional means of using a classroom or changing the learning environment, one thinks of diligent teachers decorating a first grade room with orange paper pumpkins pasted on the windows or mounted symbols of the alphabet. The letters are likely to be displayed in sequence, with the small letter following the capital letter, attached above the blackboards and marching tediously around the room.

In contrast, this facility encourages the manipulation of the environment in a much larger sense. A teacher or group of teachers can remove a wall, turn off most of the lights in a zone to form a dramatic area, apply graphics to large boards and suspend them from the ceiling, alter the size of a room to accommodate only ten students, write or paint with watercolor on any surface from floor to ceiling, and change the configuration of movable storage units to form a huge open space. Because the whole building has become as flexible, carefully programmed, and changable as a lesson in mathematics, a new educational program is needed.

This document is a recipe book to generate creative environments; it is a manual to learn about the working parts and how to use them; it is an idea book to stimulate new ways to group or cluster people; and it is a lesson plan to document the architectural design so that the facility may become an active part of the learning experience.

In the first chapter, aspects of the interior design such as the architectural plan and organization of the facility, the flexible partitioning systems, and grouping and organizational possibilities for the space will be discussed. The following chapters include a description of graphic considerations within the facility, a discussion of the materials and equipment suited for open space schools, and a discussion of the type of audio-system recommended.

Another chapter concerns itself with the exterior facilities. For example, Ecology, or the study of the evolving environment, can enrich the curriculum for the primary school population. Such a program can be enhanced immensely with a responsive utilization of the soil and landscaping layout surrounding the school site.

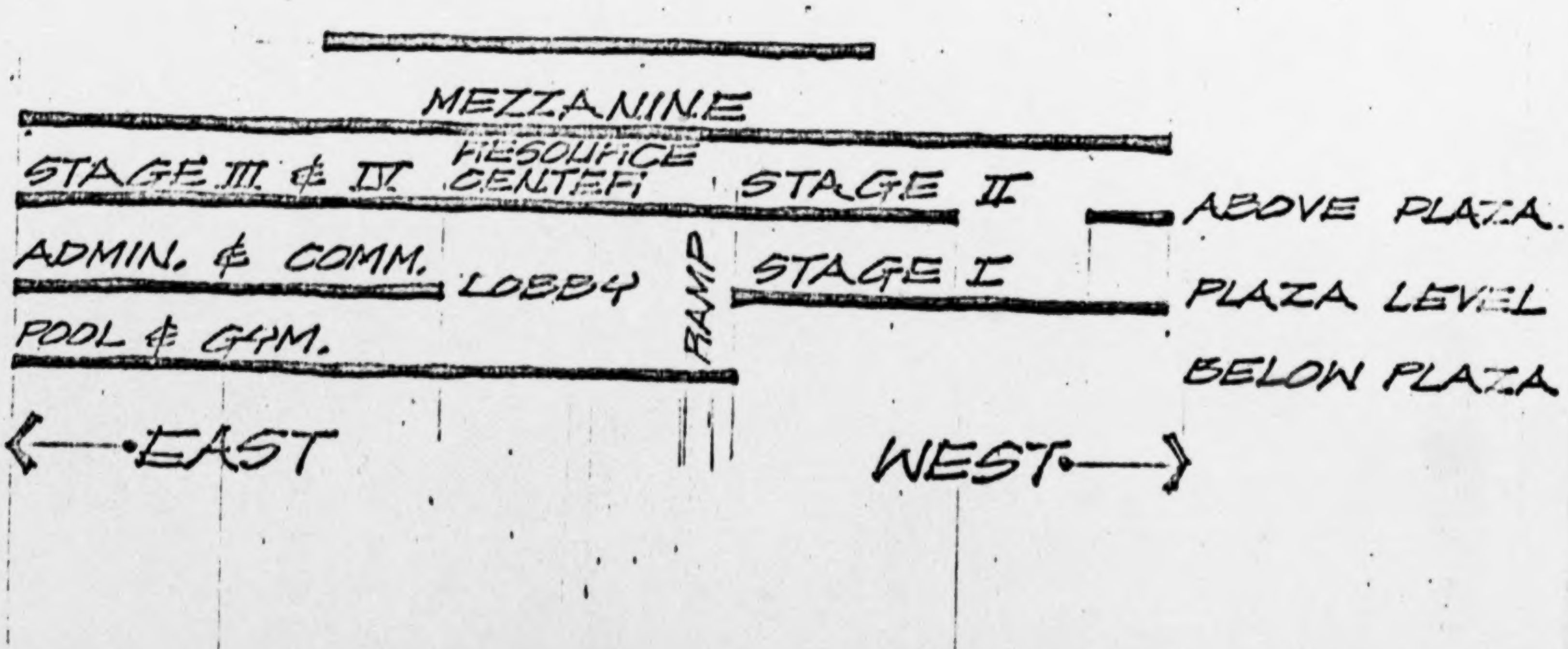
Finally, in the last chapter, General Learning has made some recommendations concerning the problem of implementation. If continuity and quality are to be maintained throughout the design, construction and initial occupancy of this facility, then the parts which make up the whole must be monitored and adjusted to insure a creative resolution. The initial planning concept must be maintained throughout the construction process and throughout the life of the building.

INTERIOR DESIGN

The plans for the First Facility include community services areas, recreational areas and educational space for 700 children from the age of three to the age of thirteen.

The following description of the design will start with the bottom floor and work up through the different types of space.

SCHEMATIC SECTION
(LOOKING SOUTH)


MEZZANINE
STAGE III & IV
RESOURCE CENTER
STAGE II
ABOVE PLAZA
ADMIN. & COMM.
LOBBY
RAMP
STAGE I
PLAZA LEVEL
POOL & GYM.
BELOW PLAZA
← EAST
WEST →

LEVEL BELOW PLAZA - East & West

Since the building is stepped down a hill, the entrance to the lower lobby in the center of the building is the major access to the facility from the North. This lobby which is near the kitchen and the outside eating area, can be used as a decentralized dining area. Since it is also near the pool, swimmers could eat in the area when the pool is in use.

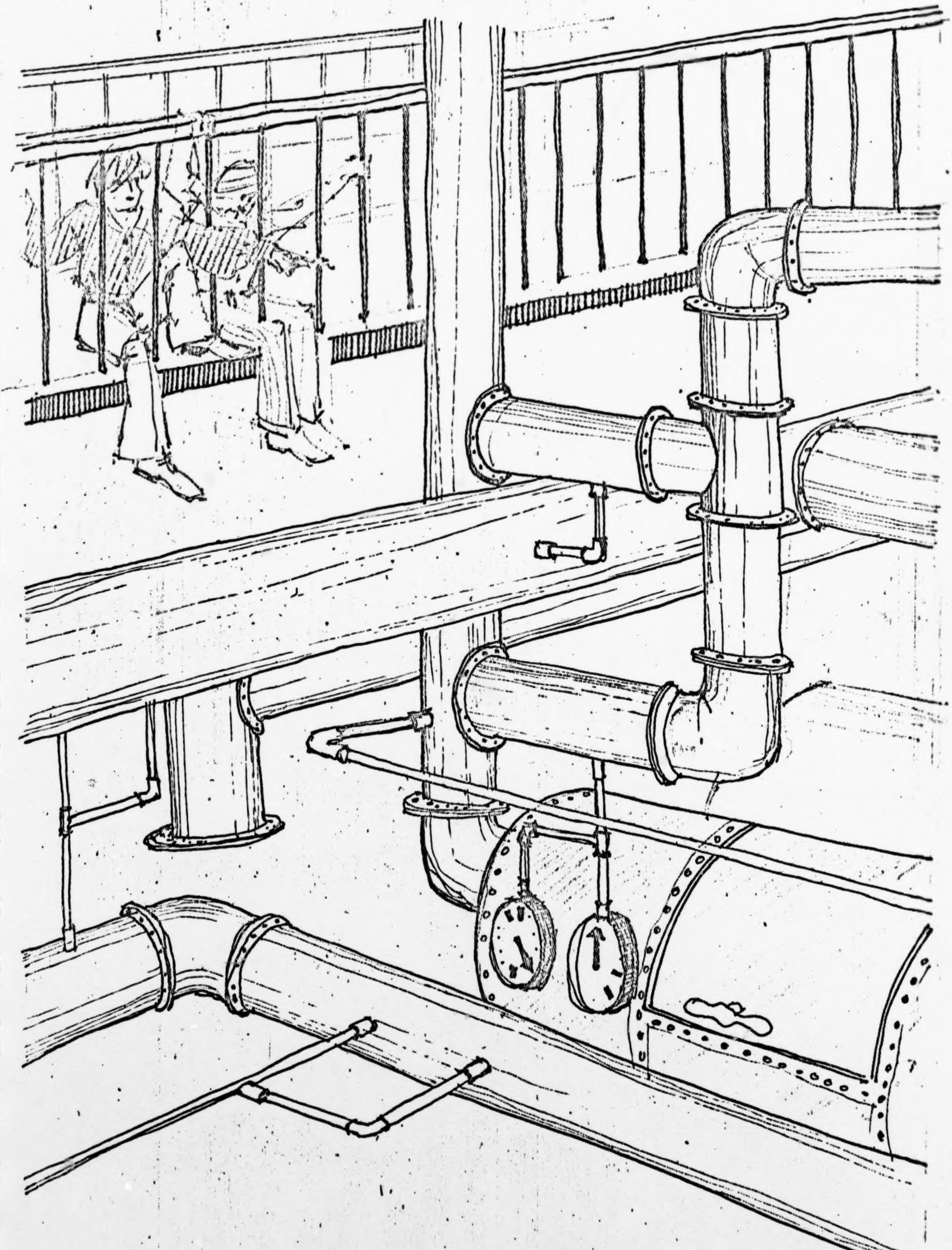
This level has access to the swimming pool and to the floor of the gym and auditorium. The spectators will use bleachers and galleries on the Plaza Level for observing games and activities. There are public toilets and telephones in the concourse which connects the lobby with the pool and the auditorium.

Swimming Pool

There is an Olympic-size pool with a training pool on one side. Lockers for both the school population and the community adjoin the swimming area. An outside pool deck, to be used in warm weather, may be reached through sliding glass doors.

Gymnasium - Auditorium

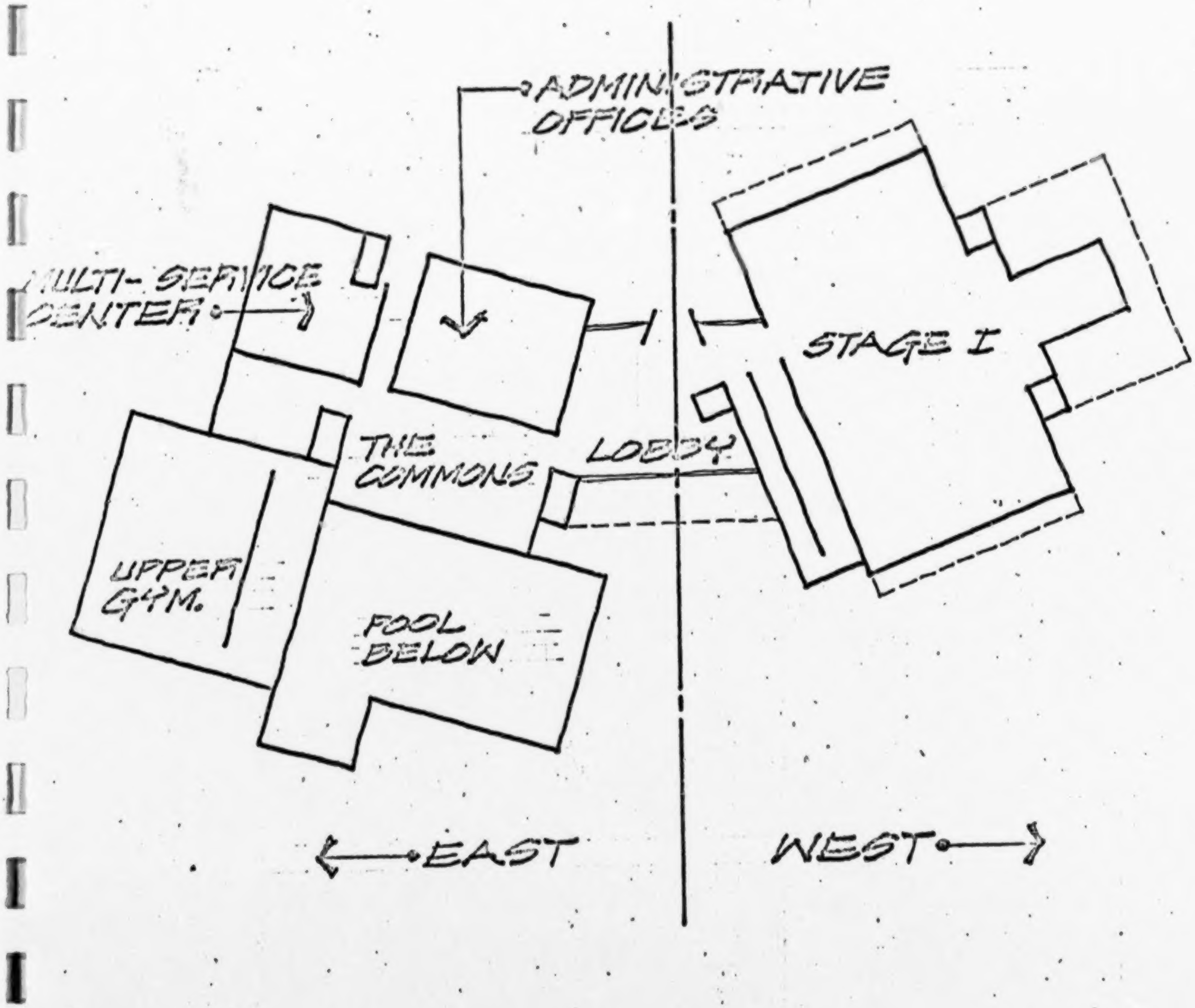
The gym is to be used primarily for the physical education program and community programs. A portable stage with an extensive lighting system may be set up. The seating capacity, including built-in bleachers on the Plaza Level and folding chairs on the auditorium floor, is 500 - 600 persons.



Kitchen-Boiler Room - Custodians Office

Traditionally these areas are considered off limits to teachers and students, yet they contain some of the most fascinating equipment and signaling systems in the school. Therefore, in this facility, these areas will be used by the children, either for group activities or for individual research projects.

PLAZA LEVEL


ADMINISTRATIVE OFFICES
MULTI-SERVICE CENTER
STAGE I
THE COMMONS
LOBBY
UPPER GYM.
POOL BELOW
EAST
WEST

PLAZA LEVEL - East & West

This area is the primary level of the facility. It contains the early learning center in the western section and community services, administrative services and public areas in the eastern section. All these areas are accessible to the town center on the south.

Lobby

The Plaza level lobby, located directly above and overlooking the Level Below Plaza lobby, serves as the main entrance to the facility. It will be used as an orientation area for large groups of visitors and a decentralized snack area for the entire school population.

Multi-Service Center

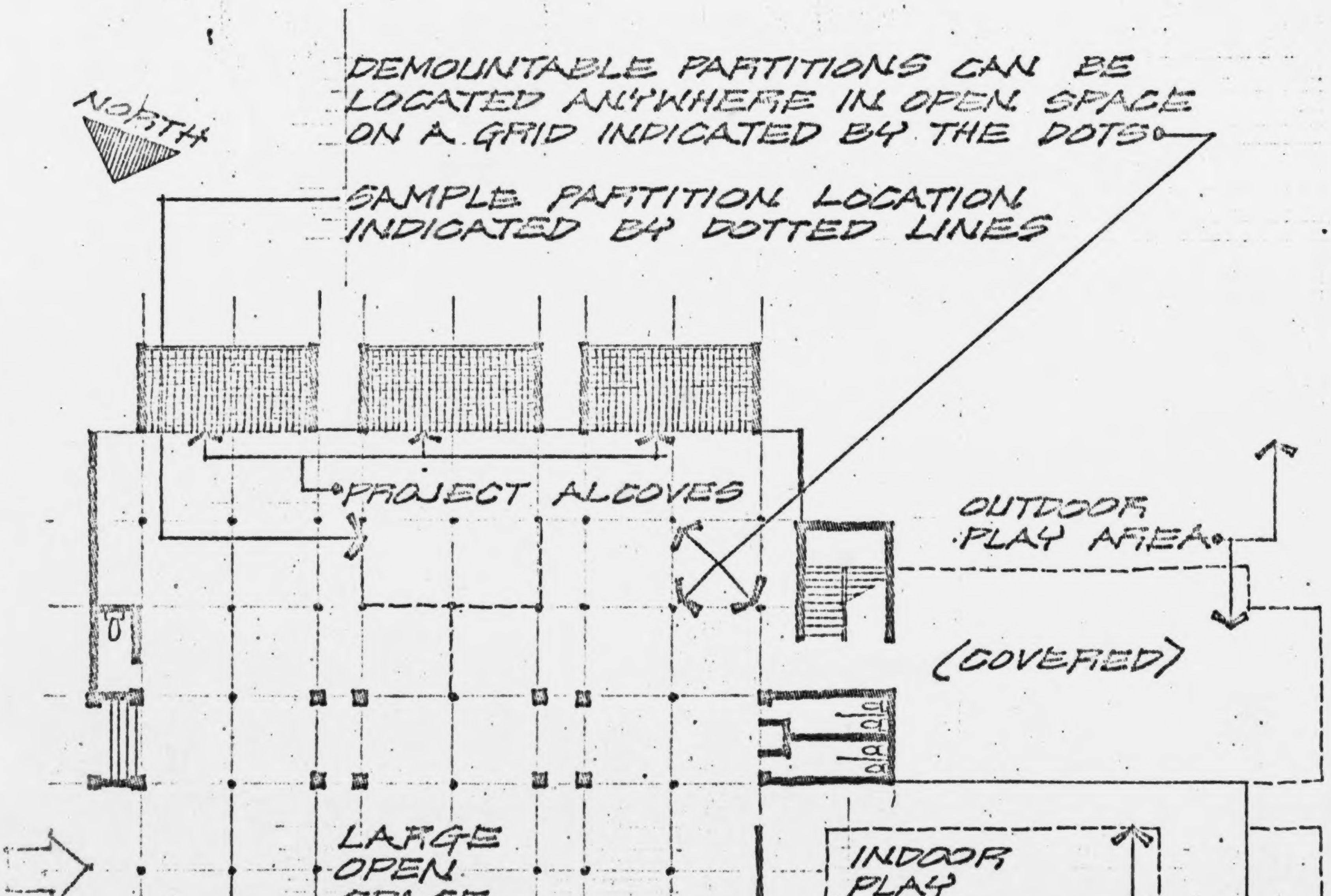
The community will need a variety of spaces for medical and social services. The large, open area in the east wing will be divided with demountable partitions as the services are defined.

Administrative Offices

Offices for the central administration should be almost indistinguishable from the community areas. These offices will act as a buffer and an information center for the operations taking place.

The Commons

This space is designed as a multi-purpose room for audio-visual and dramatic presentations, exhibitions, and meetings. It contains a "cyclorama" for wide movie projection, chalkboards, projection screens, adjustable lighting and other audio-visual equipment. The area can be used for exhibits, banquets, movie screening and other uses to be identified by the teachers and school population.


NORTH
DEMOUNTABLE PARTITIONS CAN BE LOCATED ANYWHERE IN OPEN SPACE ON A GRID INDICATED BY THE DOTS
SAMPLE PARTITION LOCATION INDICATED BY DOTTED LINES
PROJECT ALCOVES
OUTDOOR PLAY AREA
(COVERED)
LARGE OPEN SPACE
NTRANCE
ROM LOBBY
INDOOR PLAY STRUCTURE
OPEN TO STAGE II
CARPET ON FLOOR
TILE ON FLOOR
OUTDOOR PLAY AREA
STAGE ONE

STAGE ONE - Plaza Level West
175 children from three to five years of age

General Educational Characteristics

Teachers, parents and paraprofessionals as well as older students will provide direction and guidance to the young children consistent with the individual child's capacity to respond and with his attention span.

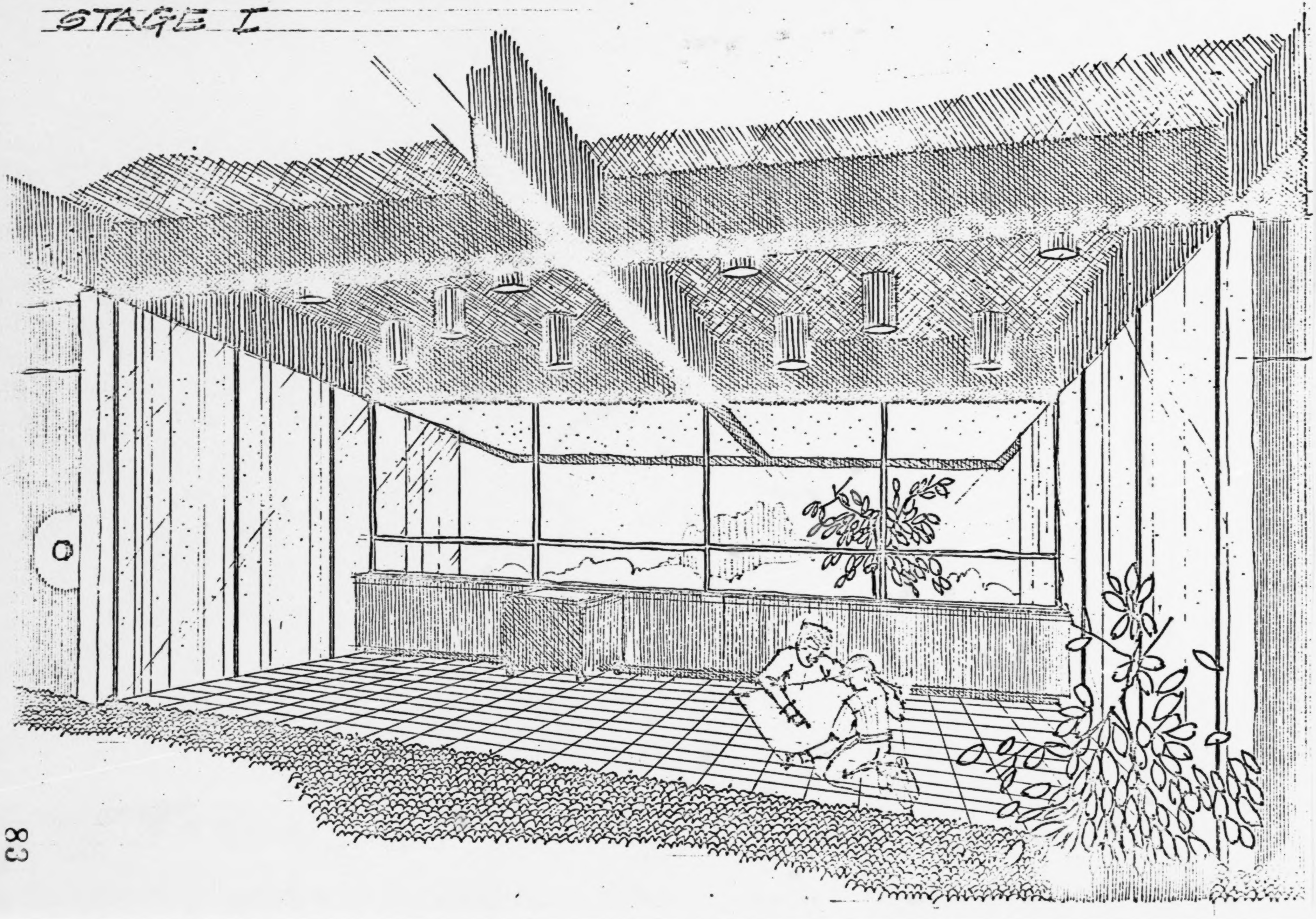
The youngsters will be encouraged to move about the area freely to allow a high level of physical activity and a variety of educational experiences. Students will be engaged in activities bringing immediate gratification (i.e. if a child wants to build blocks, he can sit down and do so at once). The space will also include protected areas similar to "home" where the students can retreat and feel safe.

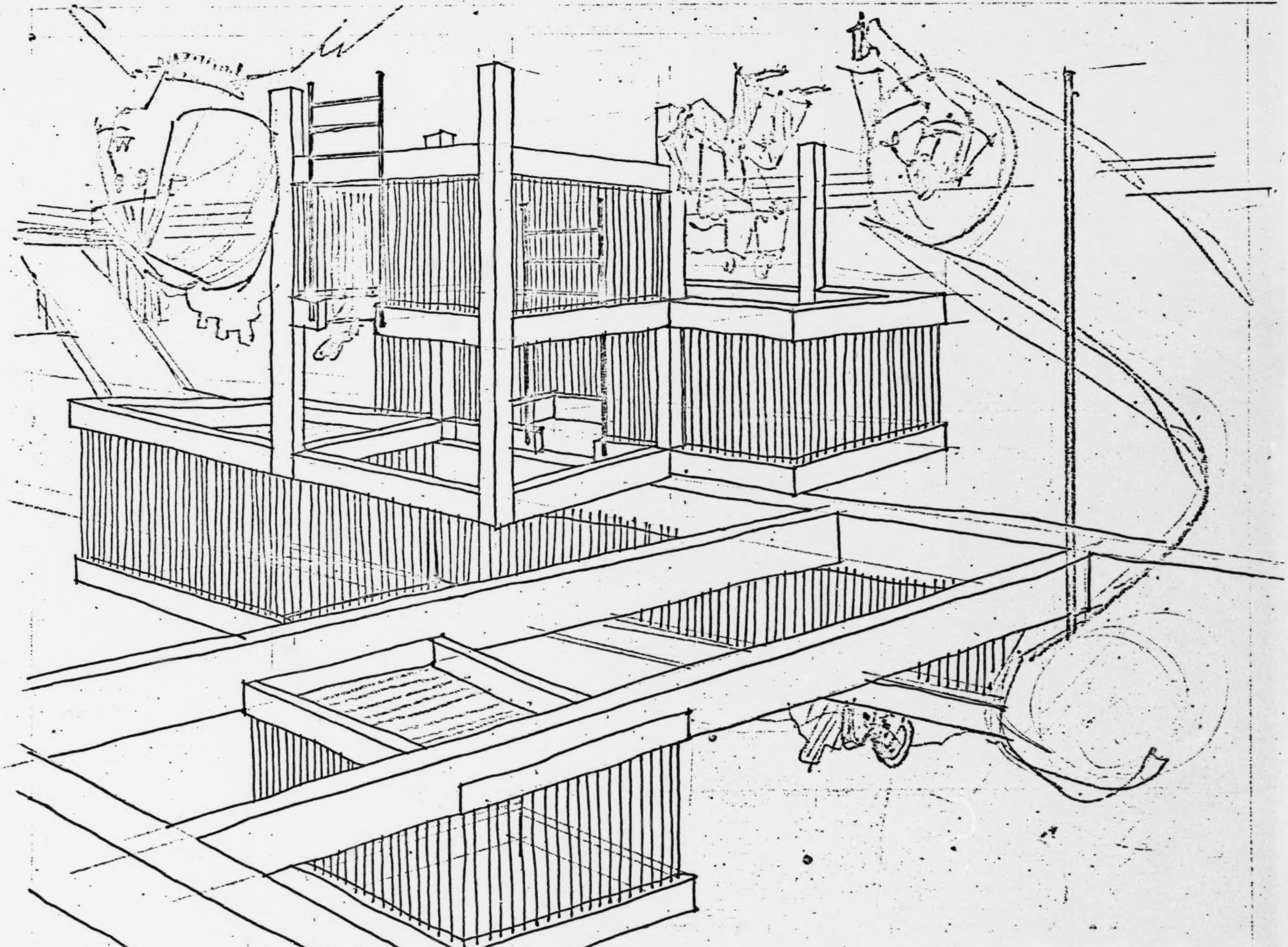
The child must come away from his early educational experiences with enthusiasm. In exploring formal instructional materials, he should reinforce his natural interests and develop a positive attitude toward both school and himself.

General Environmental Characteristics

A large open area, which can be altered and manipulated at will by its inhabitants as they discover new ways to use the environment, is designed for Stage One activities. The area itself is an educational tool. This space, approximately 100' x 150', is punctuated on the periphery by special areas for activities unique to small children. There are project alcoves (with water available) which can be articulated for special purposes such as water play, planting, etc. A play structure vertically connecting Stage One to Stage Two is designed to encourage kinesthetic exploration as well as provide a rich variety of places for dramatic productions, role playing or small group meetings. Adjacent to this structure are two outdoor play areas intended primarily for this age group.

PROJECT ALCOVE
STAGE I





Indoor Play Structure

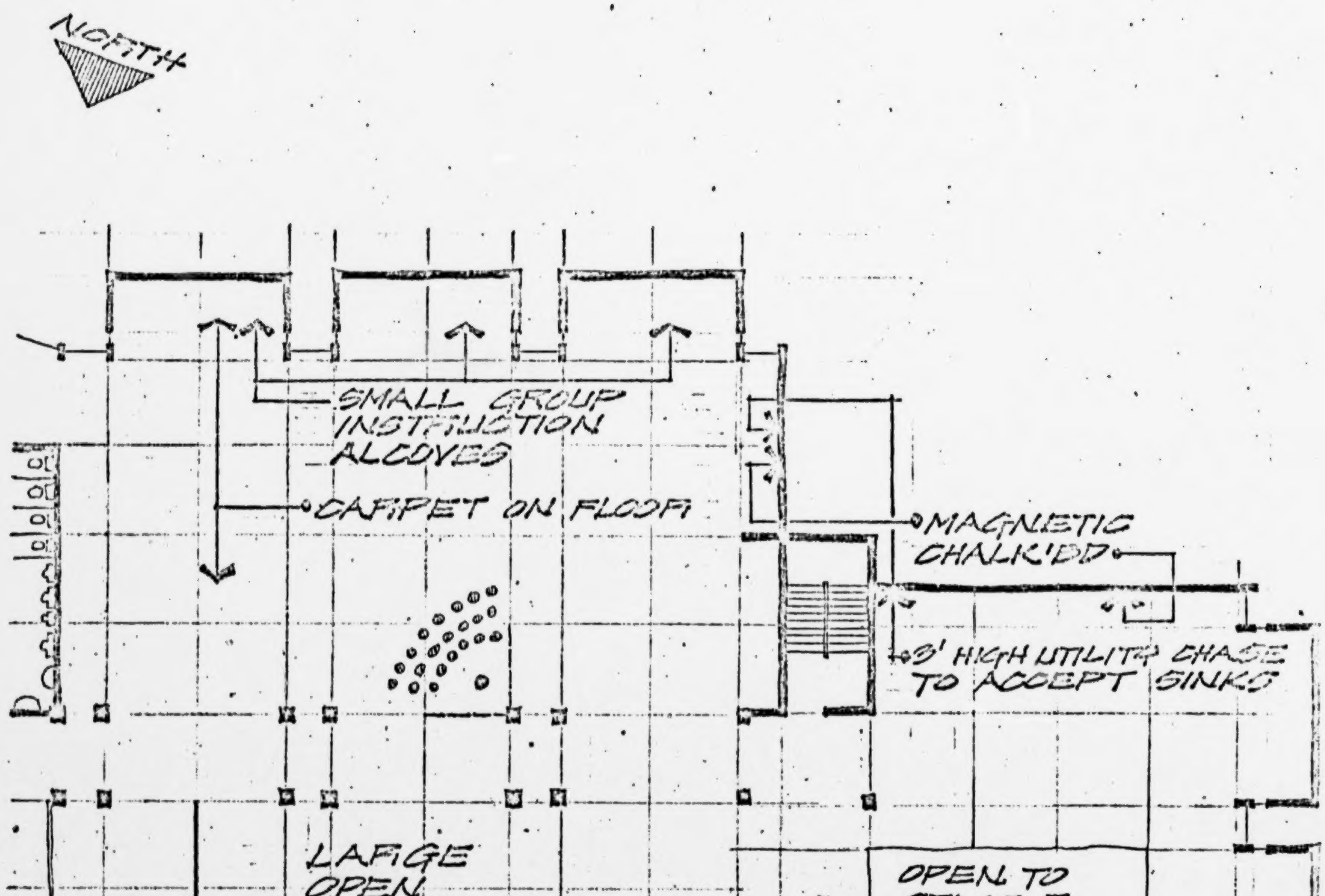
Adjacent to the large open space and immediately accessible to two outdoor play areas is a two-story, six-level structure designed for children. It consists of a series of platforms, ladders and ramps at different levels ascending to the Stage Two area and the skylight above. There are a number of ways to climb up and down between the two stages and a variety of spaces for different activities. The structure will be used for recreation, kinesthetic exercise, small group meetings and other activities. A sketch appears on the opposite page.

Circulation

Circulation through Stage One is designed to be informal. There are no corridors. Primary access will be through the administration and community area and the lounge-lobby in the center of the building. Parents and visitors wishing to observe the operation can be accommodated in several ways. They can be separated from the program with demountable partitions made of one-way glass or included in the program by encouraging them to move through the space while classes are going on.

Summary

The traditional classroom can and frequently does exist as an isolated box with desks, chairs and small displays serving as the only visual stimuli. In contrast, the large, open space with adjoining alcoves and play areas must be designed as a volume to be manipulated and decorated on a large and small scale by the inhabitants. The group responsible for the organization of the early education program must locate partitions, organize space according to group sizes and group characteristics, and consider spatial relationships as an integral part of the learning experience.


NORTH
SMALL GROUP INSTRUCTION ALCOVES
CARPET ON FLOOR
MAGNETIC CHALK'BD
3' HIGH UTILITY CHASE TO ACCEPT SINKS
LARGE OPEN SPACE
OPEN TO STAGE I
DEMOUNTABLE PARTITIONS
ADJUSTABLE SHELF BRACKET
FACULTY & COMMUNITY LOUNGE & WORK AREA
STAGE TWO

STAGE TWO - Above Plaza Level/West

235 children from five to seven years of age

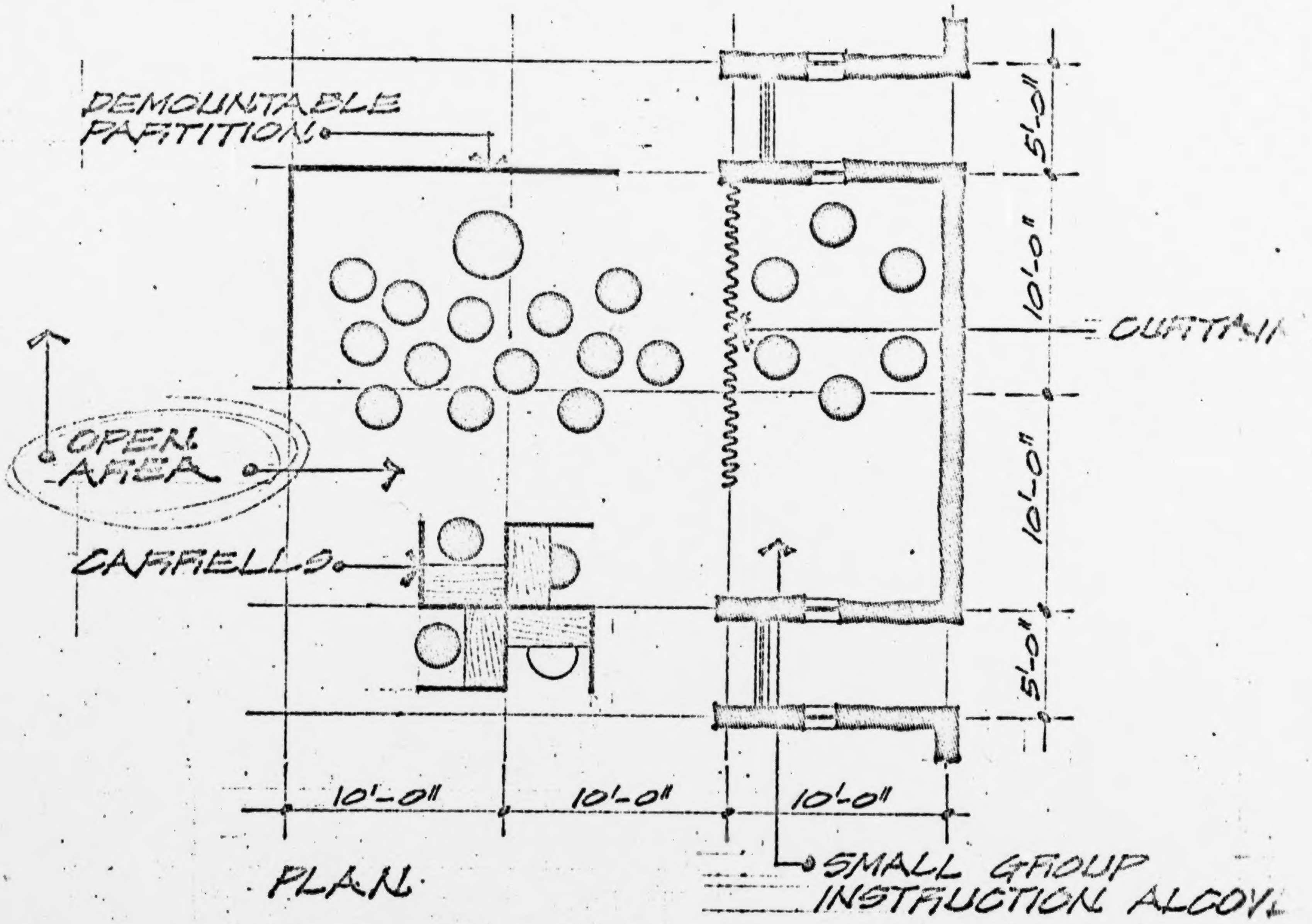
General Educational Characteristics

Children of this age generally become more independent, secure and responsible for their actions. They will be introduced to more formal instruction; testing will be initiated and reading skill and comprehension will be stressed. Formal group and individual work will be introduced for periods of ten to twenty minutes and experiences will be designated to increase persistence and attention.

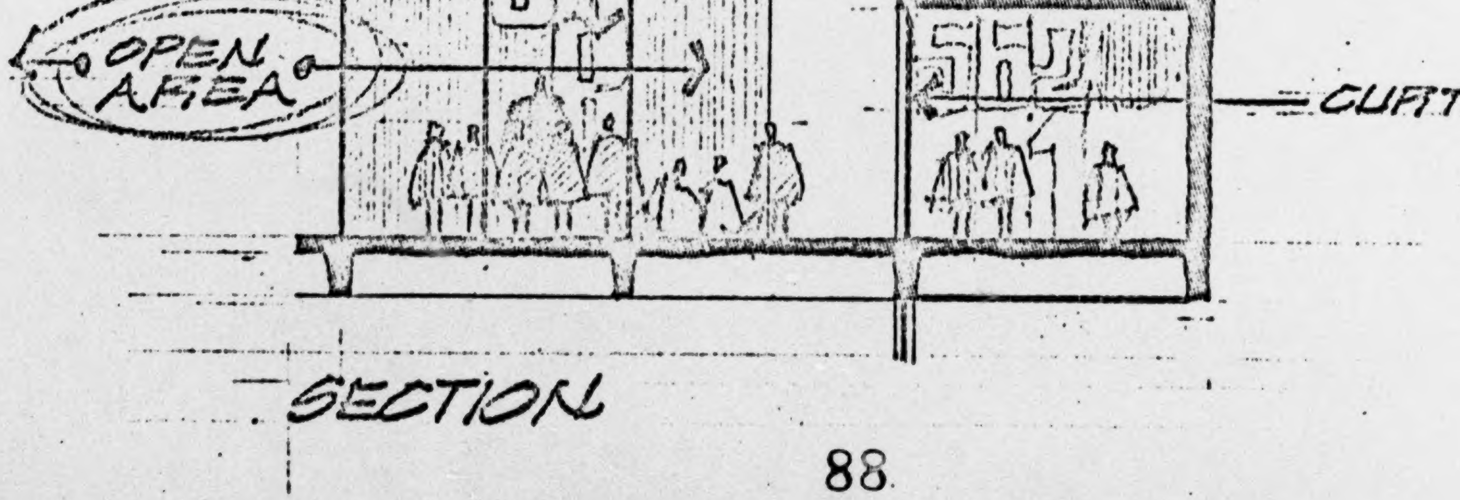
As specialized instruction begins to increase, well equipped areas will be set up as needed. There will be resource materials as well as individual work areas available throughout. Arts and crafts will be taught to develop digital dexeterity and to introduce the students to vocational techniques.

General Environmental Characteristics

A large open area is designed for Stage Two as in the area below. However, the articulation of the space will differ because children of this age need to be exposed to more specialized activities. By the age of five or six, children are able to put off immediate gratification for comparatively longer range goals. They can go to special areas for a planned event and carry it out. Children will go to the gymnasium for their exercise as well as use the indoor play structure described in Stage I and the outdoor roof surface above the swimming pool and gym. Children will go to a resource center for special projects and go to a music room for choral, band or dance rehearsal. The child's environment need not be as well defined or limited as in Stage I.


DEMOUNTABLE PARTITION
5'-0"
10'-0"
10'-0"
5'-0"
CURTAI
OPEN AREA
CARRELLS
10'-0"
10'-0"
10'-0"
SMALL GROUP INSTRUCTION ALCOV

PLAN.


10'-0"
10'-0"
10'-0"
DEMOUNTABLE PARTITION
CLERESTORY
OPEN AREA
CURTAIN

SECTION

Large Open Areas

This space, which is slightly larger than the Stage I area, could accommodate eight classrooms. The activities to be included in this space are:

For Faculty and Community:

- teacher wardrobes and work area
- community and faculty lounge
- teacher/parent planning areas
- workspace with carrels for paraprofessionals and parents
- telephone stations (4)
- community supplementary programs
- resource area
- storage for learning packages, supplies and materials

For Students:

- project areas with tables to encourage small group work
- dramatic area for incidental productions
- storage of clothing and other personal property in rolling casework
- storage and display for resources and individually prescribed learning packages
- special projects area: along the walls of the large space are small areas with vinyl asbestos tile floors to be used for wet activities. There is a utility duct running along the wall so that a laboratory table with a sink, or a water table can be plugged in easily.

The type and number of areas described above will be developed by the staff. The spatial arrangement can be changed hourly, daily or periodically each month. Descriptions of the methods of change are discussed in Section H of this chapter.

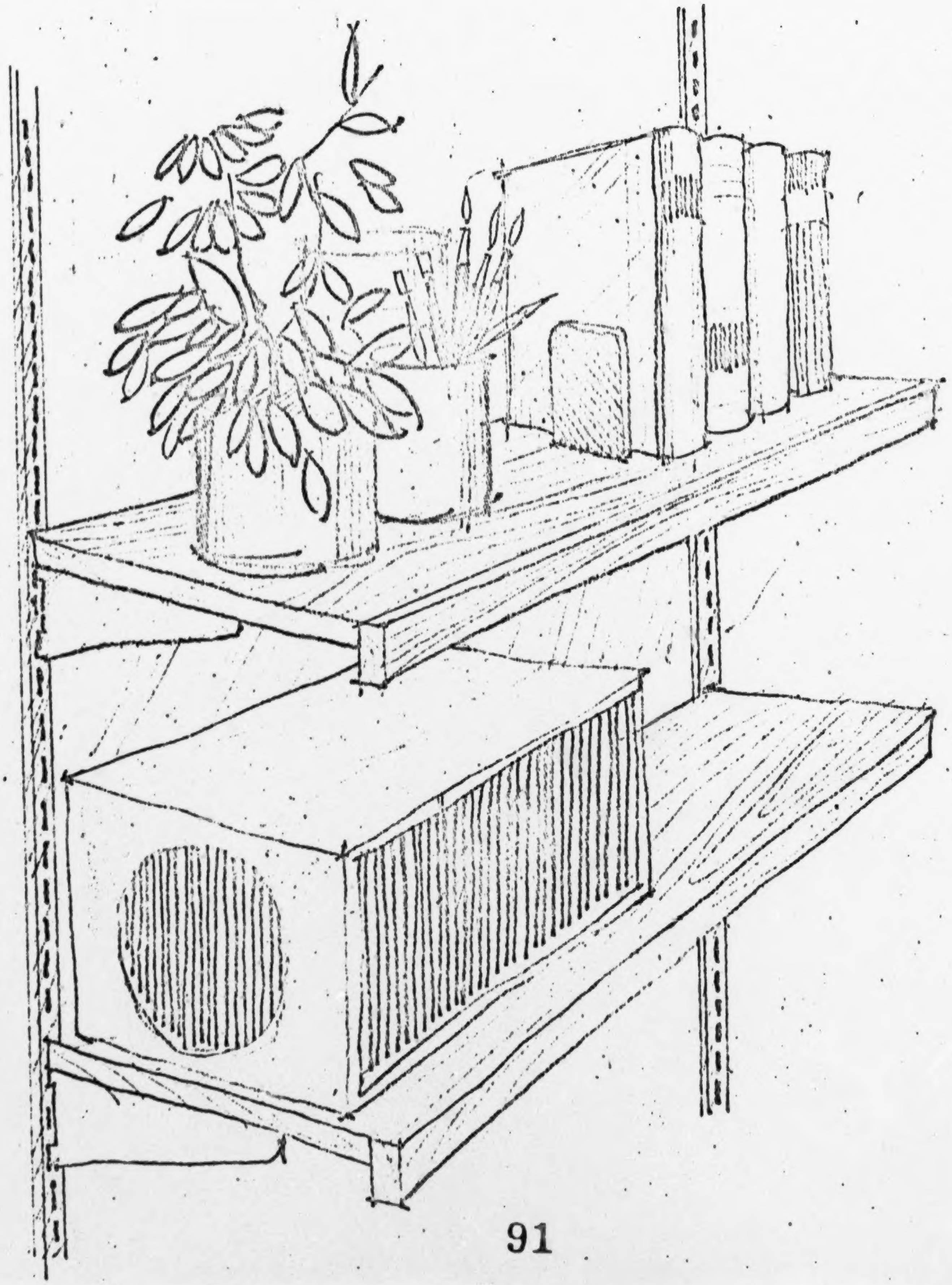
Quiet Reading Areas

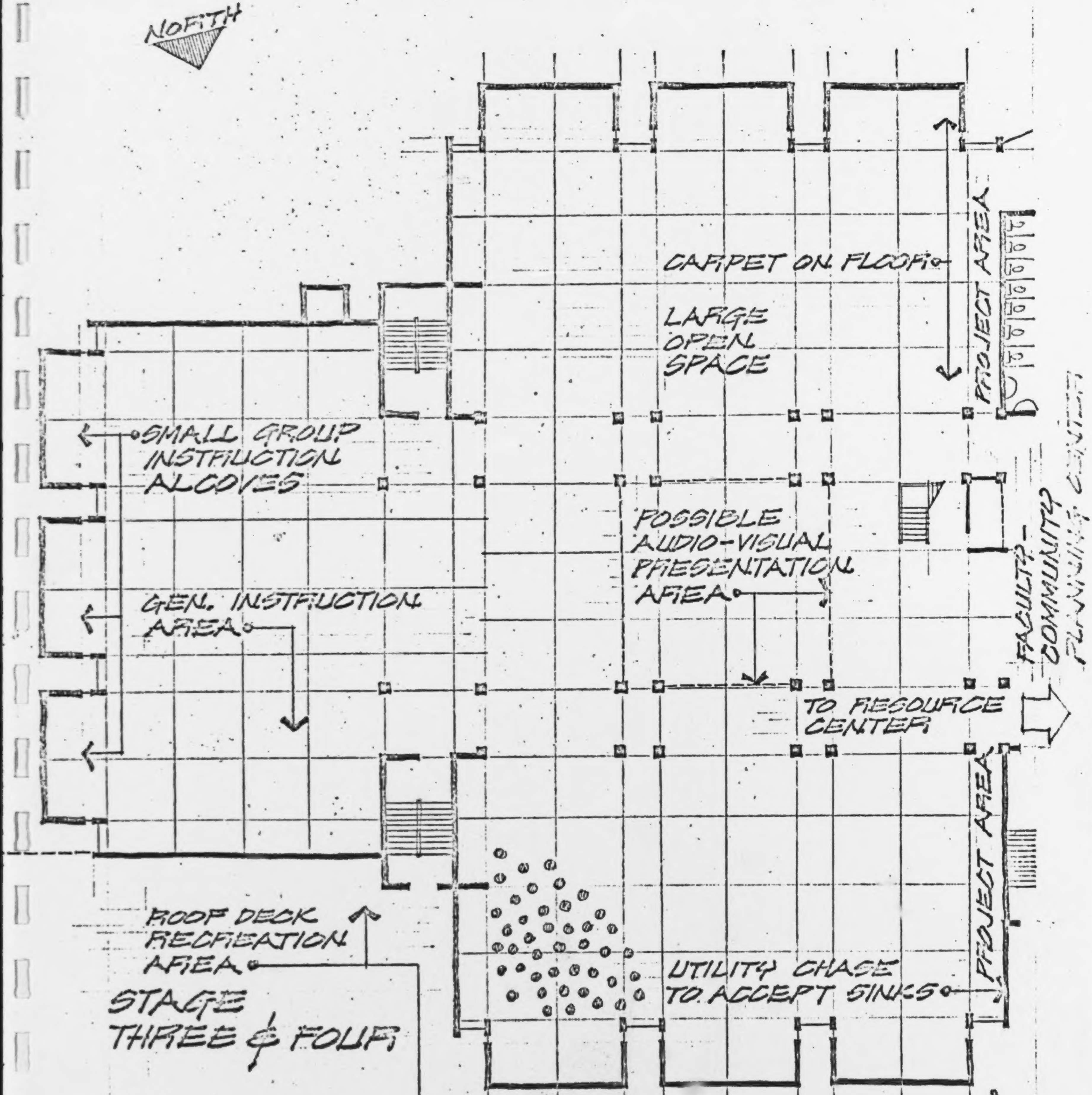
Corresponding to the Stage One alcoves on floor below there are quiet reading areas in Stage II. There are nine areas 10' x 20' in size. Although each one has the same characteristics, each alcove will be used differently according to the location of other activities within the large, open space and the equipment and furnishings within the areas themselves.

Each area will have carpets and incandescent lighting. The ceilings will be low. The wall surface will consist of metal tackboard-chalkboard with wall bracket standards occurring on a module of four feet. The standards allow an adult to add shelves, displays, or three dimensional wall hangings with ease and speed. There will be demountable partitions to enclose or divide these areas in two as needed.

Outdoor Recreation

Since children of the ages seven to twelve are physically active and are beginning to learn and enjoy team-oriented games, an outdoor play area on the roof of the swimming pool and gymnasium is located adjacent to the Stage III & IV area. It is designed for active games including volleyball, badminton, tetherball as well as other forms of play. A fireplace and sitting area will be used for snacks and picnics and serve as an additional decentralized eating area.




NORTH
CARPET ON FLOOR
LARGE OPEN SPACE
PROJECT AREA
SMALL GROUP INSTRUCTION ALCOVES
POSSIBLE AUDIO-VISUAL PRESENTATION AREA
GEN. INSTRUCTION AREA
FACULTY-COMMUNITY PLANNING CENTER
TO RESOURCE CENTER
PROJECT AREA
ROOF DECK RECREATION AREA
UTILITY CHASE TO ACCEPT SINKS
STAGE THREE & FOUR

STAGE III & IV - Above Plaza Level/West
290 children from seven to twelve years of age

General Education Characteristics

Stages III & IV of the educational program have been combined into one area because the children of this age will be engaged in similar activities. Instruction will be based on the capabilities of the child with each student progressing at his own rate of speed. Educational materials of all types and equipment such as tape recorders, typewriters, cameras, and projectors, will be used. Students will participate in reading, writing, listening, lecturing, discussion, research, and construction alone and in groups. They will be encouraged to use much of the audio-visual and other special equipment themselves. Whenever possible, activities will provide well-defined objectives for the students to achieve. Reading and mathematics will be stressed as well as concept formation, psychomotor skills, creative self-expression and beginning process skills related to work.

General Environmental Characteristics

The large open space in Stage III & IV is intended to replace a number of classrooms. The types of groups established within the area will continually remain flexible. The grouping will vary as small groups and individuals engage in learning activities. Spaces will be defined to allow children to project filmstrips, to have a seminar with three to fifteen students and perhaps a teacher, to get together in a group of seventy for an informal dramatic presentation, to collect at tables for a group project, to go to a carrel to work on a research paper, etc. This flexibility in arranging the space will provide the staff with many options. However, if the options are not used -- if the partitions are not "mounted and demounted" or the rolling casework is never rolled --

this general, versatile space can turn into a stagnant and traditional school configuration.

Large Open Areas

This area , designed to accommodate 290 students, is larger than the Stage One and Stage Two areas. It is similar in plan to the Stage Two area and is intended to include the same activities. The space dividers may be set up into more formal arrangements here than in the areas for younger students because the methods of instruction as well as the subject material generally require the students to concentrate and work at one activity for longer periods of time.

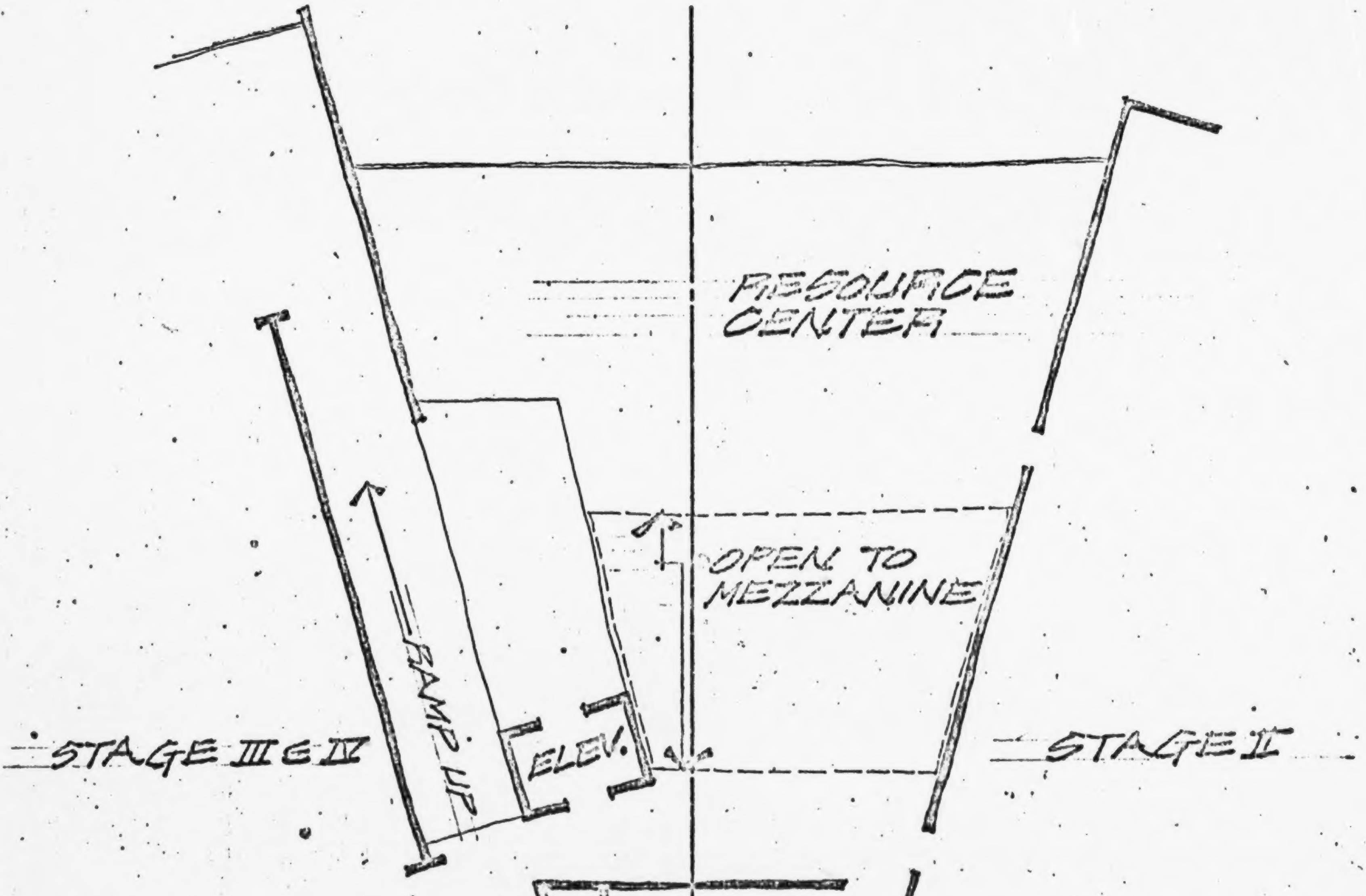
Project areas on the periphery of this space allow individuals or groups to work on projects for longer periods of time. There is direct access by stairs to the mezzanine above as well as direct access to the resource center located on the same level. The area will be used for a variety of purposes. This includes parent-teacher conferences, classes for adults, and other supplementary community programs.

This space expects to be changed. Therefore the articulation of the large space at any one time cannot be predicted.

Small Group Instruction Alcoves

The alcoves are identical to those in Stage Two in size and shape. Because students of this age generally begin to engage in one-to-one confrontations and small group work, these spaces will often be used by more than one student at a time. Two, three, or four students, with or without a teacher could work on a research project together or drill each other on an exercise.

ABOVE PLAZA LEVEL - CENTER


RESOURCE CENTER
OPEN TO MEZZANINE
RAMP UP
ELEV.
STAGE III & IV
STAGE II
EQUIP.
MUSIC & DANCE ROOM
BOY'S TOILET
GIRL'S TOILET
EAST
WEST

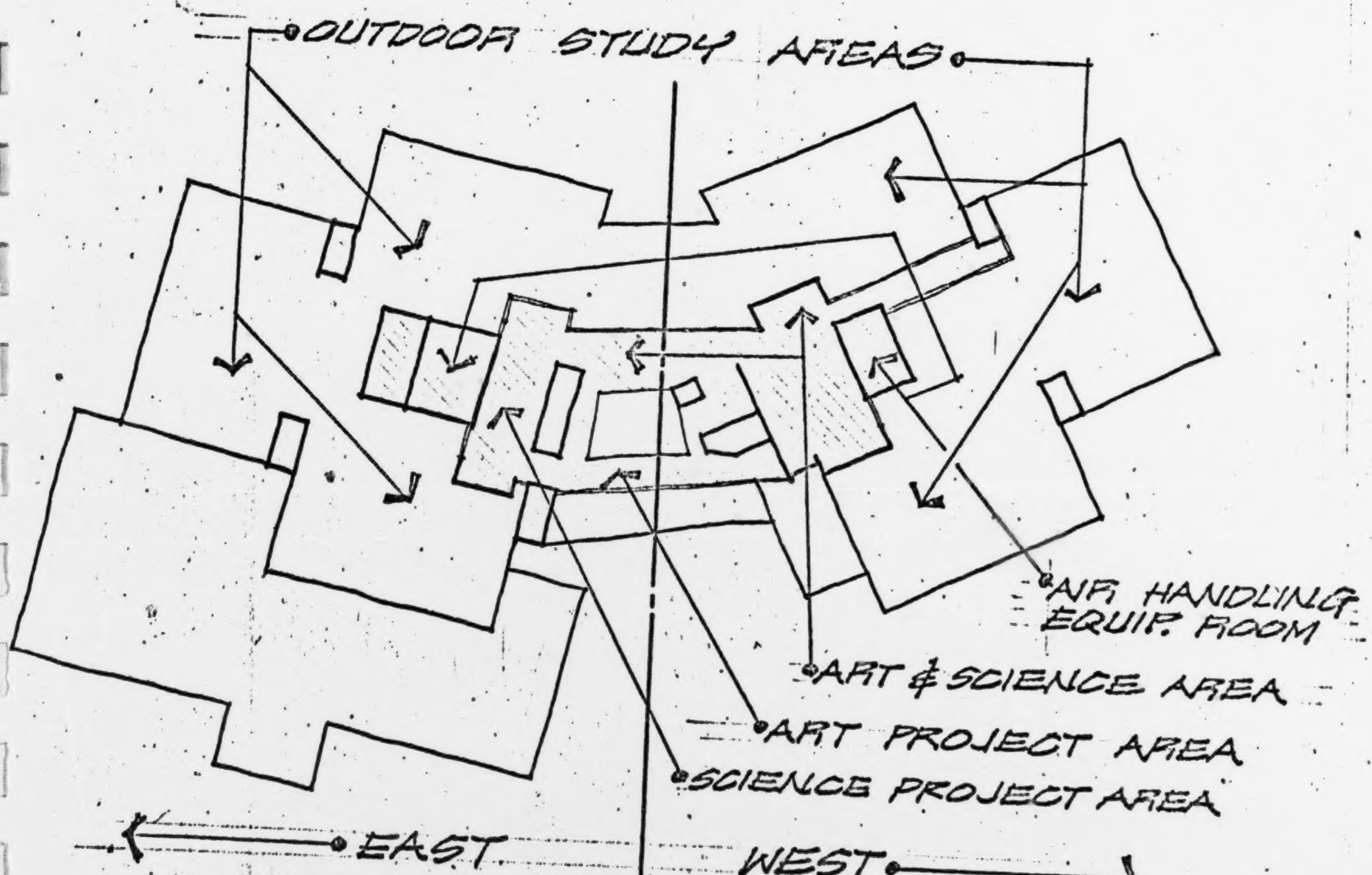
ABOVE PLAZA LEVEL - Center

Connecting the two large areas for Stage II and Stage III & IV are facilities for common use: music and dance room, the resource center and the lavatories. The music room is isolated to reduce acoustical distractions in the large open spaces.

The resource center will be equipped with "wet and dry" carrels, work tables, and resources for advanced work including slide-tapes, filmstrips, records, books, etc. This center is intended to reinforce the material available in the Stage areas.

In addition, periodicals and research materials for adults, will be available. It will be possible to adapt materials, furnishings and equipment for adult use as necessary.

MEZZANINE


OUTDOOR STUDY AREAS
AIR HANDLING EQUIP. ROOM
ART & SCIENCE AREA
ART PROJECT AREA
SCIENCE PROJECT AREA
EAST
WEST

MEZZANINE

The mezzanine serving the entire school includes a science area and planetarium with a domed ceiling, a dark room for photography, and project areas for art and science. Located above the resource center and music room, it connects two stairways in the general learning areas and provides access to planters and project areas on the roof.

In addition, the mezzanine contains a cooling tower and a room for the air conditioning equipment. In the same way that the boiler room and the kitchen are to be used for special studies and observations, these areas should be utilized by the students.

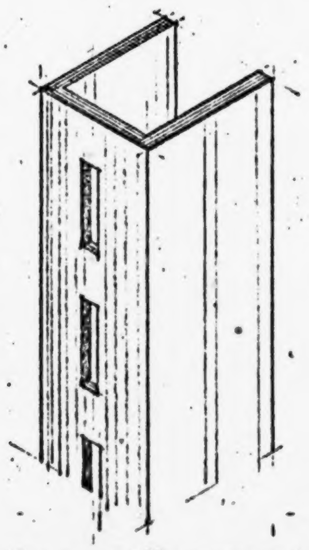
Outdoor Roof Areas

The outdoor area adjacent to the mezzanine has been designed for instruction and recreation. Planters for growing flowers, vegetables and plants on the periphery serve as a protective fence. Science and art projects should be undertaken both inside and outside this level. Because of the decentralized snack facilities, students may eat in the outdoor roof area.

FLEXIBLE FEATURES

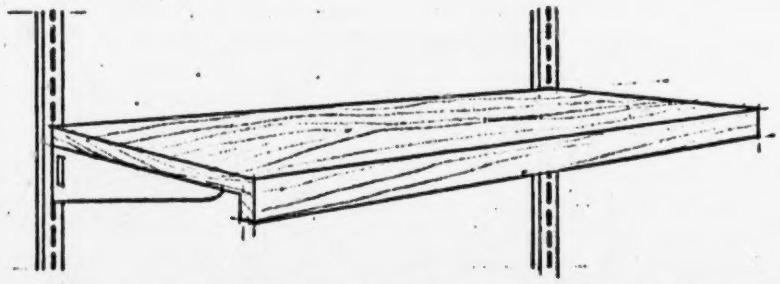
Wall Brackets and Standards

Wall brackets and standards are set into most of the interior walls to be used for display or storage as needed. Individual areas are not designated for specific purposes. The wall bracket standard, which is sketched below, also provides an interesting modular design when not in use. The bracket standard:



is designed to receive a standard book shelf bracket:

And two of these will support a shelf at any height:



The brackets themselves can also be mounted on the demountable partitions as well as the modular carrels recommended for the facility. This continuity should enable the staff to design an innumerable number of useful storage and display units as well as mount graphic panels. It is hoped that the standard item will acquire new uses and new designs as the staff works with it.

Moveable Equipment

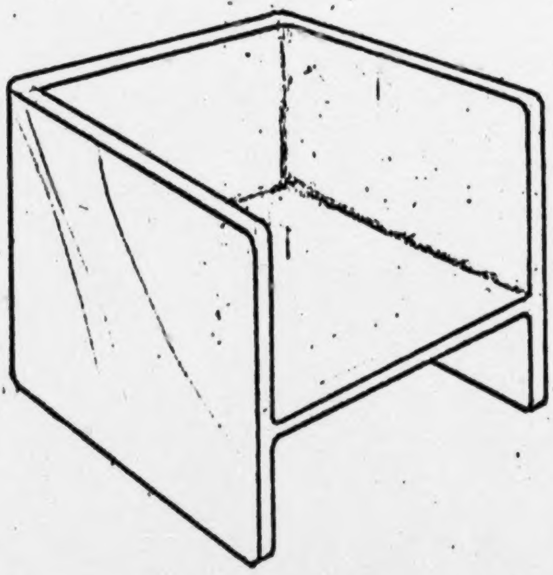
Many of the storage needs which, traditionally, are served by fixed closets or built-in cabinets, will be filled by rolling casework. Some will be low so that a child can see over them and others will be higher to create greater visual privacy. They will assume the following storage functions:

- cubbies for personal belongings
- hooks for outside garments
- instructional papers and books
- games and toys
- teacher's wardrobes
- teacher's work space
- student carrels (if desirable even these can be on casters)

Two Alternatives to Desks and Chairs

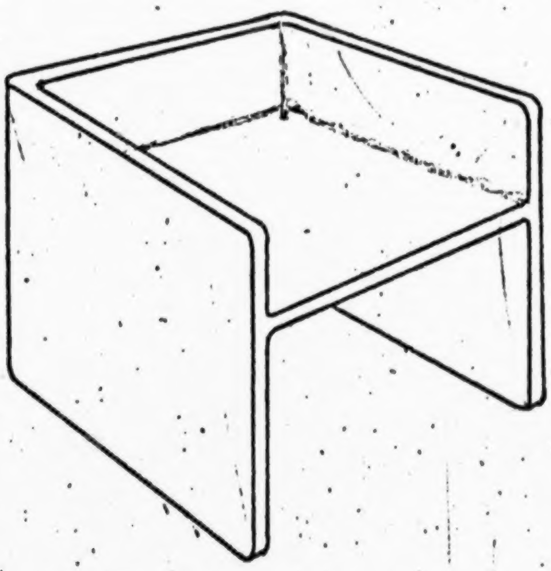
Frequently, when a large open space is used in place of the traditional classroom, the equipment and furnishings needed for the old classroom are put into the new space. Consequently, the freedom and flexibility offered in the open area are impaired because of the many desks and chairs.

Through the efforts of the Educational Facilities Laboratory, several alternate types of equipment have been devised. The first, which is currently on the market, is called the Educube. It is manufactured by the Monsanto Chemical Company of St. Louis. It is a polyethylene cube which is a chair:



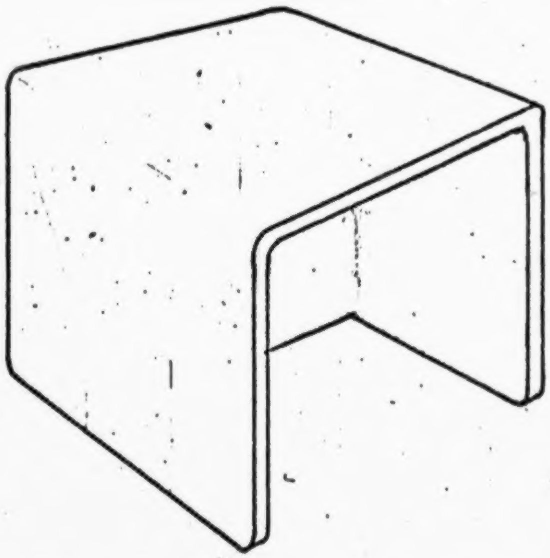
for small children

A chair turned over with a higher seat:

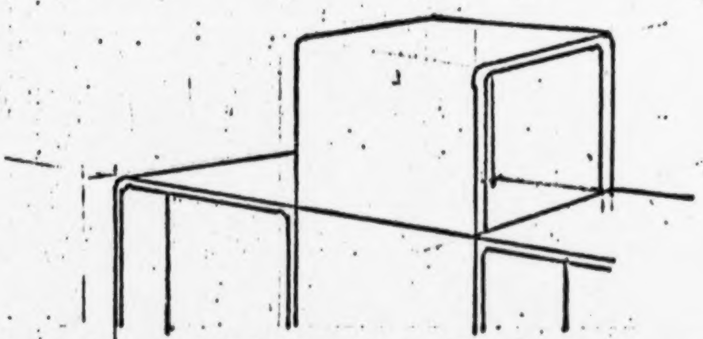


For larger children

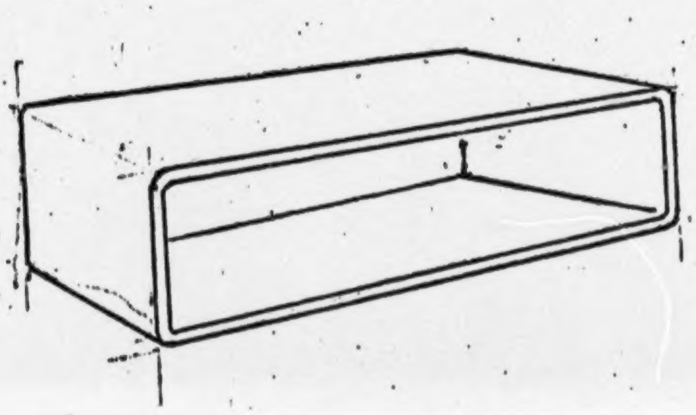
And a desk for either chair:



Stacking combinations and desk-chair combinations are numerous. The cubes, which come in primary colors, will be decorative and easily stacked when not in use.

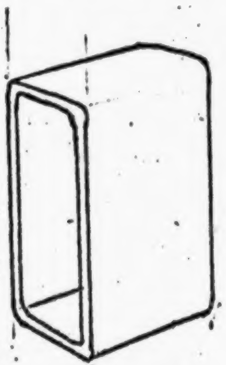


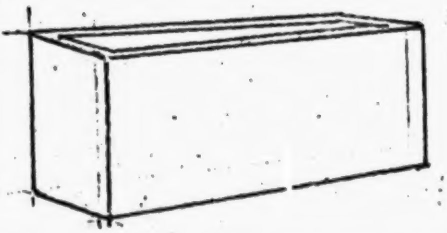
Another alternative, which is now in the development stage, is a modular solution made up of two parts. It should be available in prototype form in the fall of 1969 and in production in time for the first facility. It can be a table:



with a rough surface to stand on or to prevent slipping along a carpet and a smooth surface for writing.

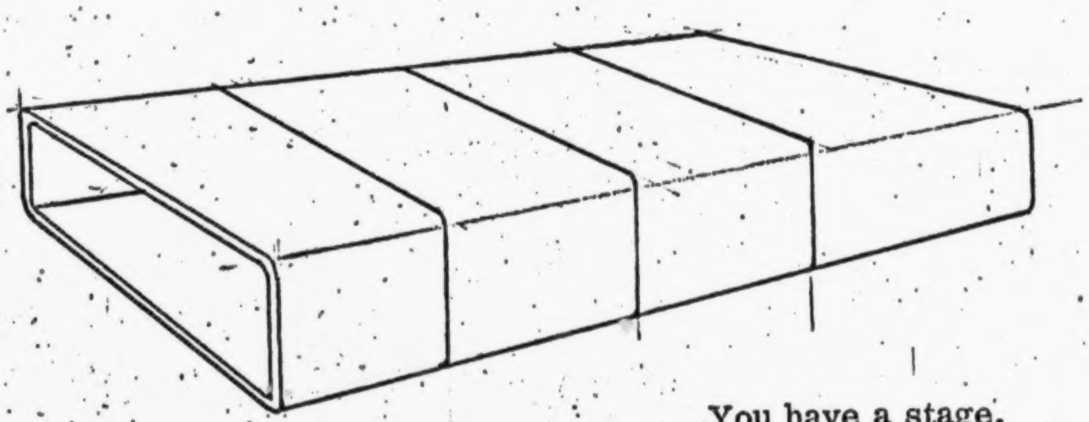
If you turn it on end or on its side:





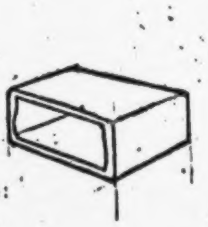
it is an excellent space divider or projection screen.

If you put several together:

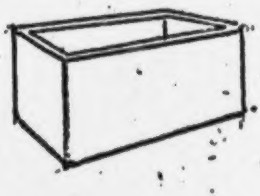


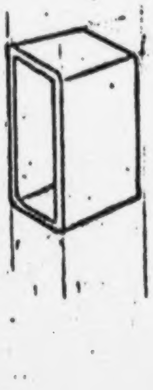
You have a stage.

The smaller of this component is a stool:

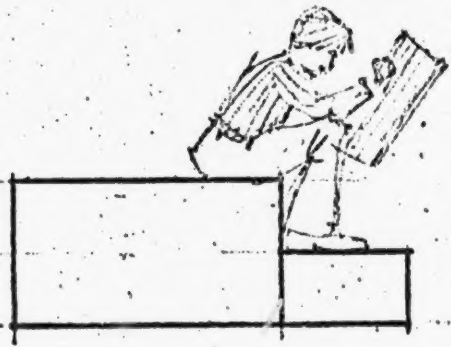


which can be set up many ways for different heights:

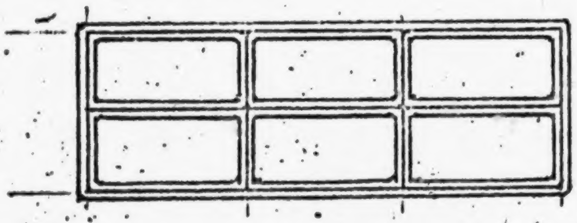




This small unit can be used with the table:



and six small ones can be stored in one large one:

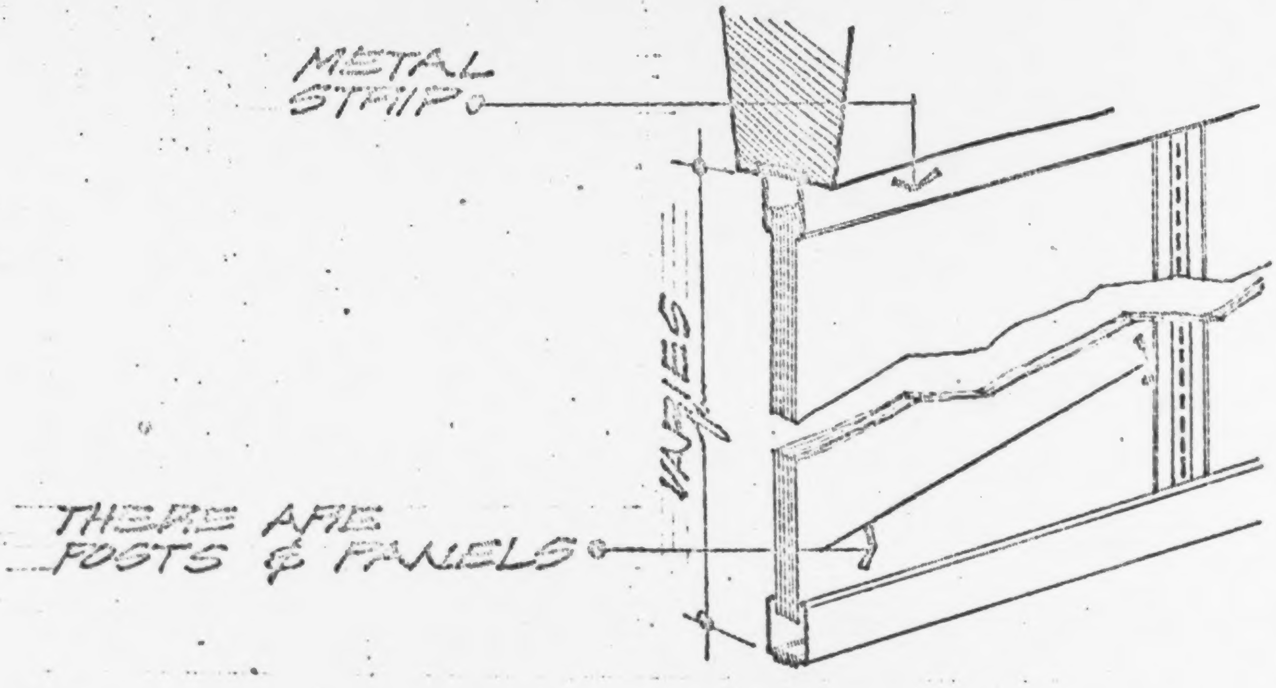


These products serve as desks and chairs and obviously can fill a variety of functions.

Demountable Partitions

The demountable floor to ceiling partitions should be used to accent and divide the general learning areas. Partitions sold by the Hauserman Company are specified for the facility.

These partitions require a metal strip to be installed at the bottom of the ceiling beams to hold the posts for the partitions. The grid ceiling is designed to hold this strip which can be installed permanently or changed periodically by the custodial staff. Once the strips are set in the ceiling, the installation of the partitions is simple.



"School Mates" - Carrels

These carrels designed by the Hauserman Company are similar in materials and design to Hauserman's "Action Wall". They are 50 to 70 inches high and can be arranged in numerous configurations. The carrels can hold the standard wall brackets and shelves used on the permanent and demountable partitions. They can simply divide space or they can be set up as desks or individual or small group project areas. The erection process is described on the opposite page.

COMMUNICATIONS SYSTEM

In traditional schools, various types of communications systems are used. These include intercom and paging equipment, bells, clocks and other audio-video systems.

In the First Facility, General Learning recommends that these components be combined into a comprehensive intercommunications system. Two master systems, a random access intercom and a closed circuit television system, would form the backbone of the communications for the school. Other independent systems such as the bells and the public address system would be tied to the master systems in a way that avoids unnecessary duplication of equipment and yet preserves the essential characteristics of the subsystems.

The Audio System

In concept, the audio design is an evolution of older intercommunication systems where users could talk to and from a central point. Through modern equipment, it is possible to set up much more complicated two-way communication systems between individual learning areas and the central office and between separate learning areas. Under the proposed system it should be possible to communicate privately by telephone and publicly by microphone and loud speaker.

For example, supervisors may talk privately or through speakers to various school areas. Teachers may talk to aides across a learning space or may talk to each other from one learning area to another. Or, the school principal may preempt all existing communication and talk to the entire school -- or to various zones in turn. Various program materials such as background music or taped information may be tied to the overall system at central or zone control points.

The basic equipment necessary for such a system includes two types of unit: control equipment at the central administrative office and selected zone stations (such as department offices or special activity areas) for relaying, switching, and monitoring communications to and from stations or groups of stations in that zone; and "field" equipment in the individual learning areas for selecting programs and receiving and transmitting communications to other areas. Outgoing calls usually go at the control station administratively associated with the learning area where they can terminate or be routed to other areas in the building.

A variety of program sources should be available. They should include: background music, "white noise" or background noise for the larger areas, an FM or broadcast tuner, output from an auditorium amplifier and materials from the local learning areas.

Closed Circuit Television

The closed circuit television system makes it possible to broadcast educational and selected commercial televisions to the learning areas and the community spaces. It also provides for the distribution of locally produced television material (made with television cameras or videotape recorders).

It is recommended that an underground cable with "CATV" be set up for the entire school system. Such a system would eliminate much of the need for masts and antennas on top of each school building and for special converters at each school to convert Channel 26 and future ITFS channels to standard VHF.

GRAPHICS

In our schools, as in our daily life, mediocre design at every level has become the accepted convention. Nowhere is this more evident than in the use of graphics and color in our public school system. Graphics is herein defined as signs of every shape, size and color as related to both the design of the school spaces and the signs used within. It is only in the last few years, in fact, that the use of both color and graphics in schools has begun to be studied as a learning tool for educational and environmental objectives.

The current concept is that a sign -- any sign -- can be more than a directional stimulus. All signs fall into two general groups. One, abstract graphic indicators, the other, verbal graphic indicators. Both can be conceptual as well, teaching a lesson as they chart a course. They can be flexible, allowing the child to manipulate and change them to meet new needs or functions. In its use of color a graphic indicator has a double-barreled approach, teaching relationships in space between areas coded by color. Finally, it need not be a sign at all but merely an idea or concept employed graphically.

It is the scope of this report to outline and illustrate a program of graphics and color in relation to a prototype school situation, in this case the Fort Lincoln First Facility in Washington D. C. . The types of graphic hardware and software as well as the relationship of graphics to color in architectural finishes and the function and furnishings specified will be explored.

A. Graphic Hardware

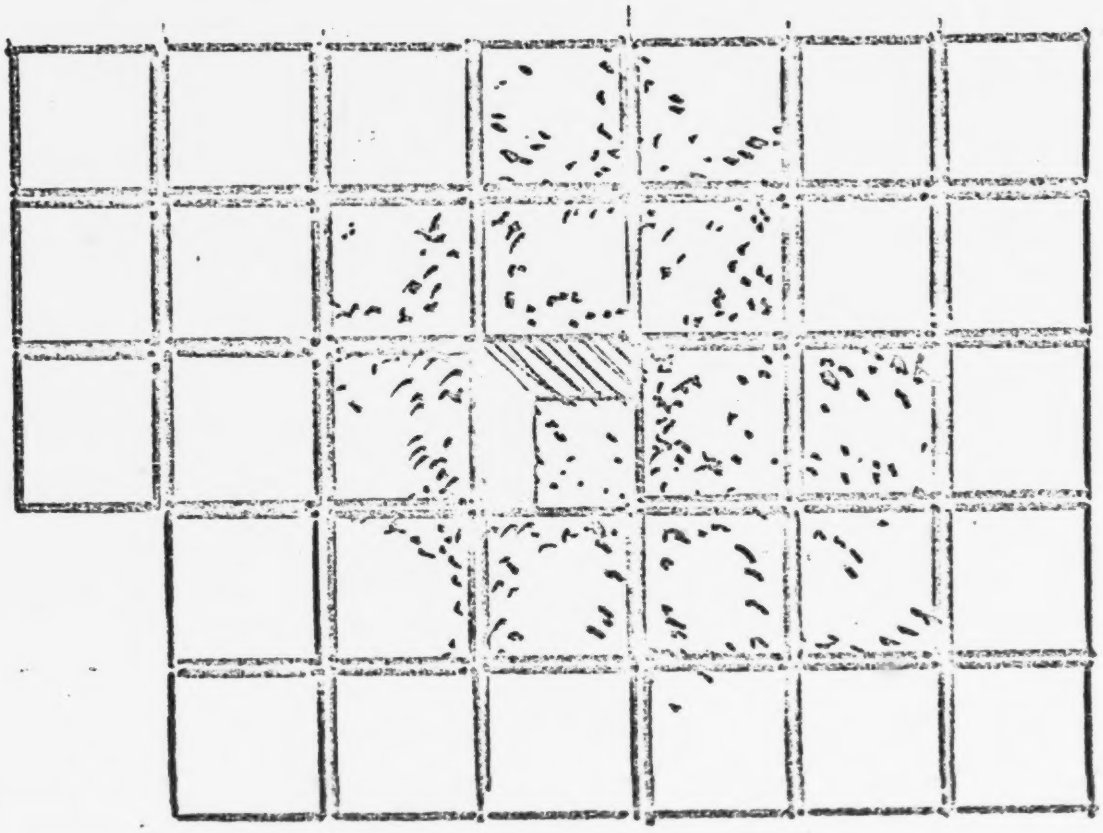
Signs or graphics can be divided into two general groups, one loosely defined as directional and the other as conceptual. It is also generally true that the directional sign is often permanent, while the conceptual may be variable and flexible.

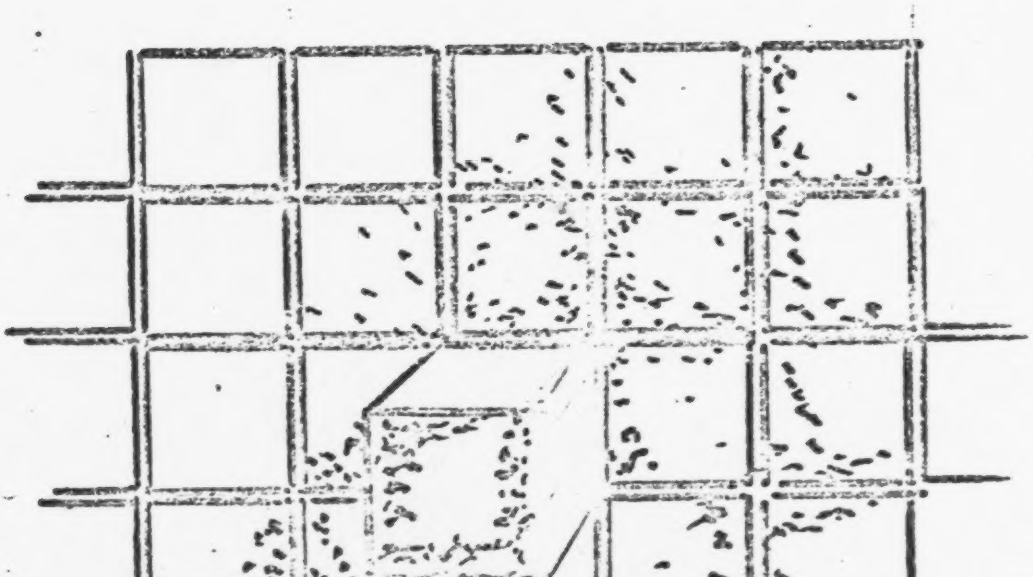
However, it is also true that in conventional schools the very permanence of directional graphics is a negative, stultifying factor, making it difficult to achieve flexible or varying use of spaces. How then can directional graphics change or be changed by children? Perhaps the goal should be a continuous graphic redefinition of space.

Some examples can be helpful. In the First Facility, for example, the basic building materials are modular---brick and concrete blocks, each having its own characteristic dimensions which are related by multiples of 4. It is easy to see how this module, though permanently embedded in mortar, can be redefined by its dimensional characteristic.

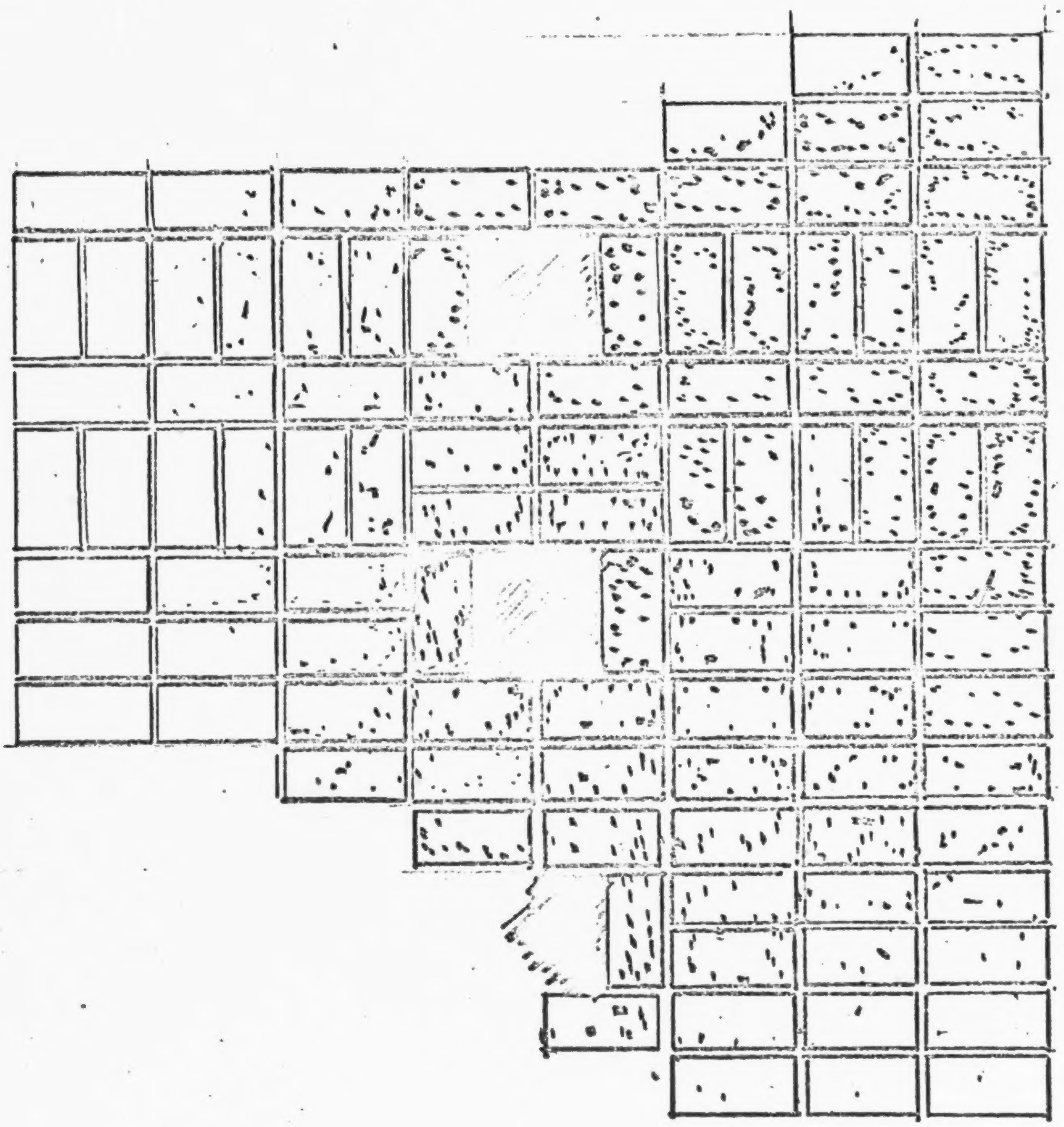
For instance, in the First Facility, the block is arranged in 4' modules punctuated vertically by slotted standards designed to support shelves and other accessories. (Illustration 3a)

By painting or coloring these modules of 8" and 16" in series or sets, it is possible to demonstrate or simply allow the child to figure out relationships by number and color. Indeed, if a block were to be omitted from time to time or another to protrude, (Illustration 3b), it is almost possible to see the progress of a child's thought from concrete experience to a high level of abstraction. The same procedure, of course, could

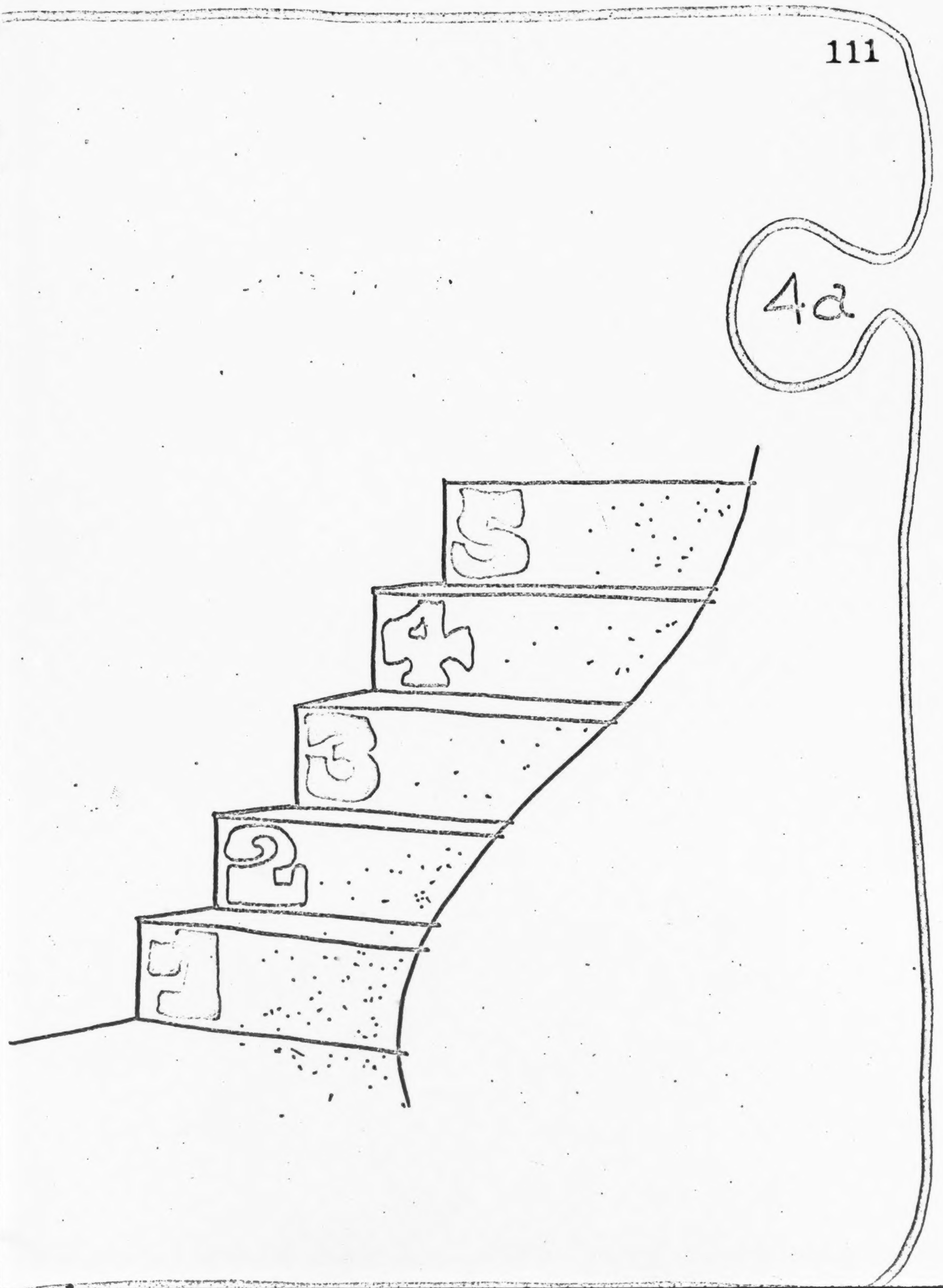


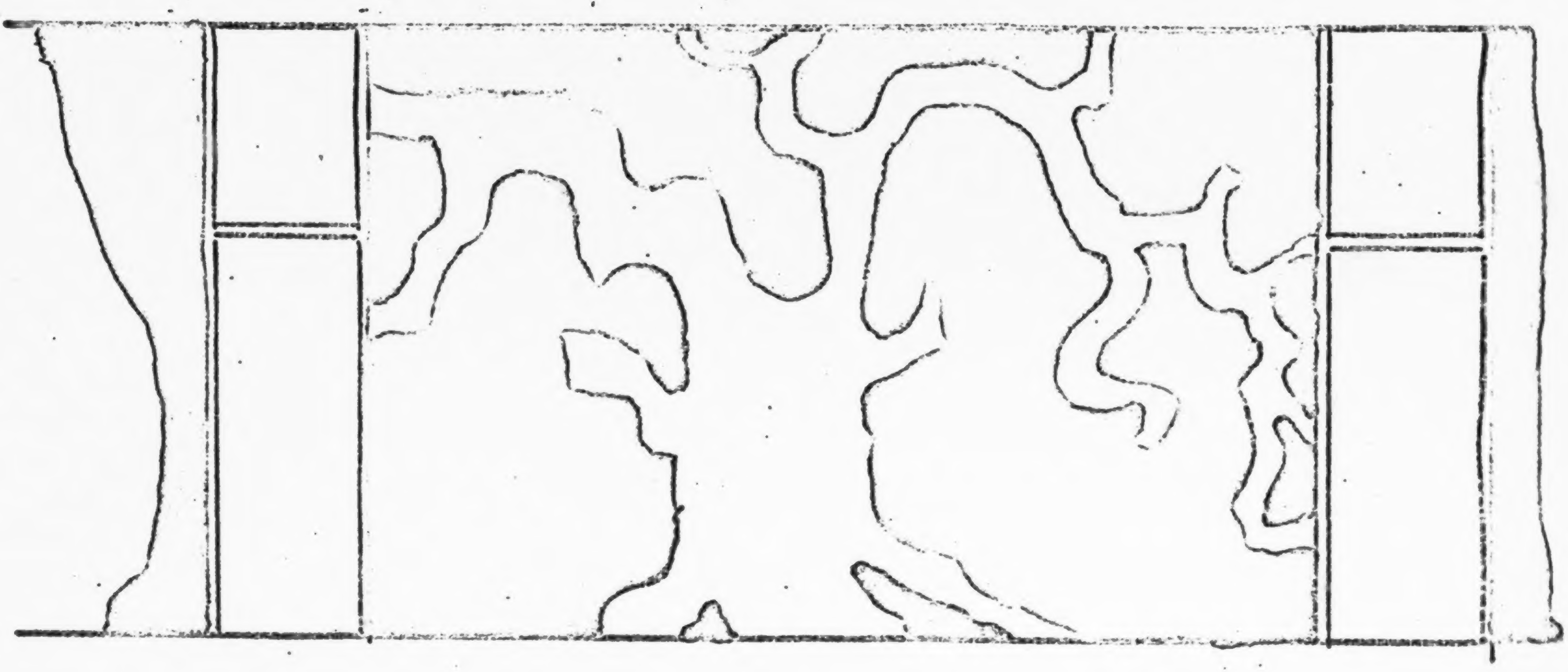


3b



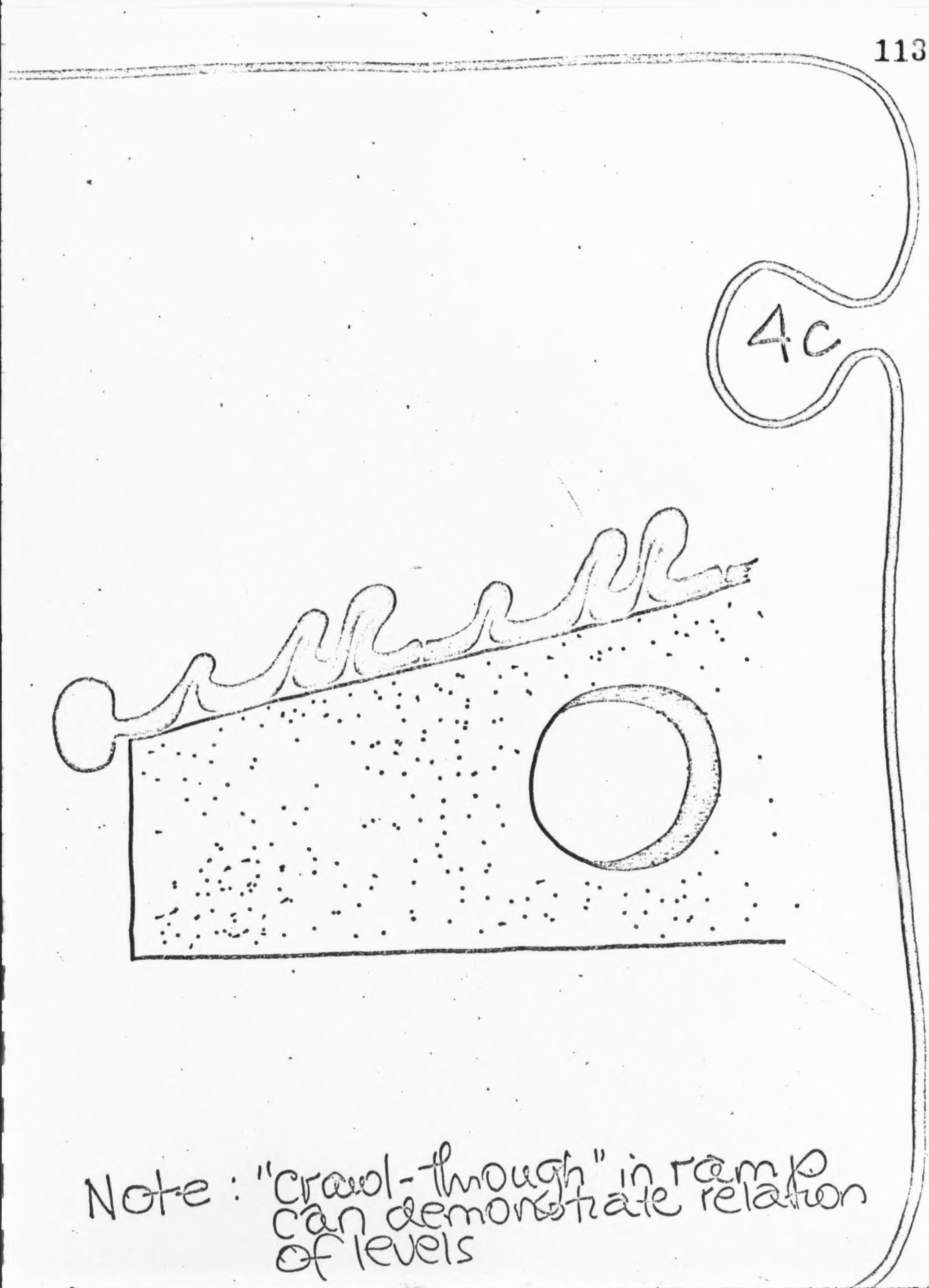
3c


4a
5
4
3
2
1



Note: Autograph Tree to be
made of cork or wood
applied to wall surface

4b



Note : "crawl-through" in ramp
can demonstrate relation
of levels

be used with brick. In fact, any type of masonry screen, properly located and colored, can be a challenging lesson. (Illustration 3c)

Going further into the development of graphics contained within the architectural structure, would it not also be possible to use the modular quality of steps?

Possible uses for steps include the following:

As seats -- the addition of a soft surface such as carpet can easily convert a step into a chair; as numbers -- numerical symbols can be run up or down a series of steps; as an experience in space -- risers, color coded to relate to the space below or above, can provide the child of 4 or 6 with the kind of experience he needs to understand transitions in levels. (Illustration 4a)

On the other hand, to show how the school is built, a graphic illustration would be a cut-away or glass partition showing structure or plumbing or wiring behind walls; or to have differing ceiling heights appropriate to children of varying age and sizes; or, to allow the child to make his mark on the school, a giant autograph book or carving tree could be created in selected areas where the material and location would make carving
irresistible
names and initials irresistible. (Illustration 4b)

The kinesthetic and textural aspects of the architectural space can be explored further as well. In the First Facility, where a ramp connects the two walls, would it be possible to make the railing in ripples instead of conventionally straight? It would be almost as much fun as running a stick against a series of posts to be able to run up or down a ramp with a rippling rail. Modern plastic rails can be molded into any shape required to create this form. (Illustration 4c)

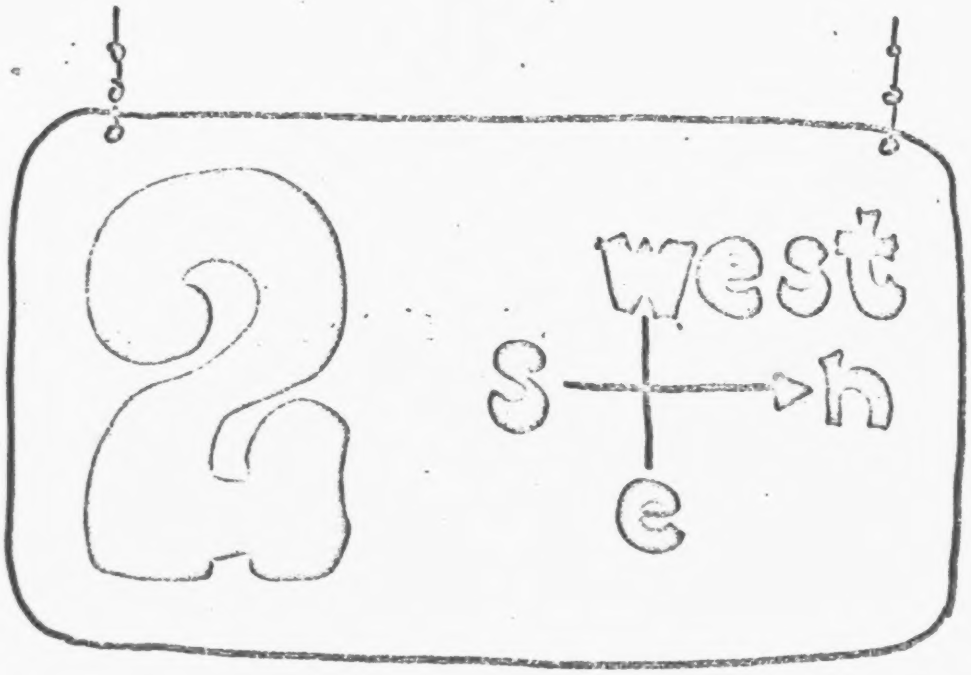
Different flooring surfaces should also be explored. Going from a rough pebble texture to a smooth resilient flooring to the softness of carpet can be a conceptual tool. If the color, shape and size of textures used are approximate to the activity in the area, a conceptual abstraction can be learned.

But in schools, as in hospitals, office buildings, hotels and almost any non-residential area, graphics are used to indicate locations in a very real sense. In the First Facility, as for any new school, it would be desirable to use directional indicators that could be changed easily and without any great expense.

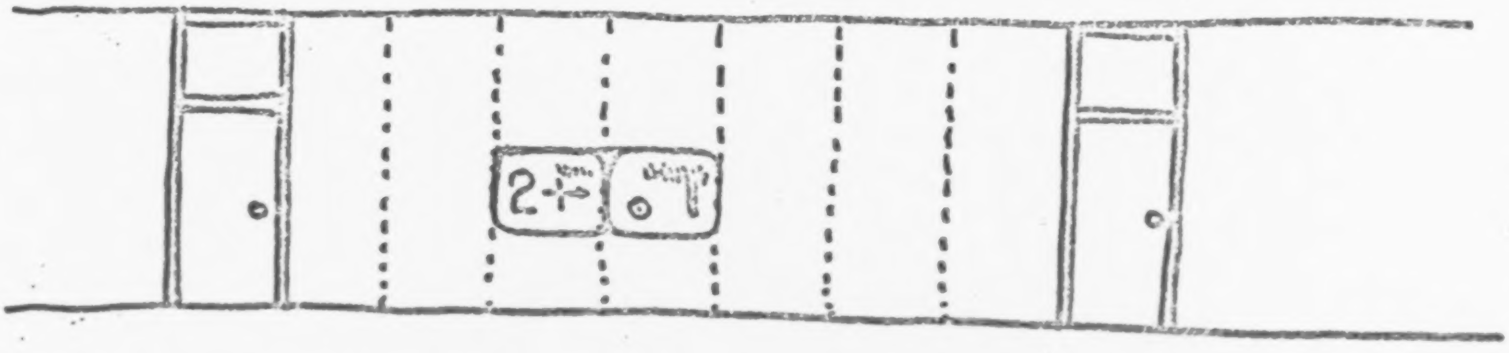
A modular sign pattern, with pre-finished board of differing sizes, could be hung by pre-drilled holes on hooks fixed into both the walls and the ceilings. The wall signs could be opaque while the hanging signs could be made of transparent plexiglas. The signs would indicate room or function or direction as needed. (Illustration 5a) More than one sign could be combined: when the need for change in room function or direction was required, other signs could replace these, or be exchanged for those in reciprocal areas. This would prevent the unsightly sign-upon-sign so often seen in schools where changing room functions are common.

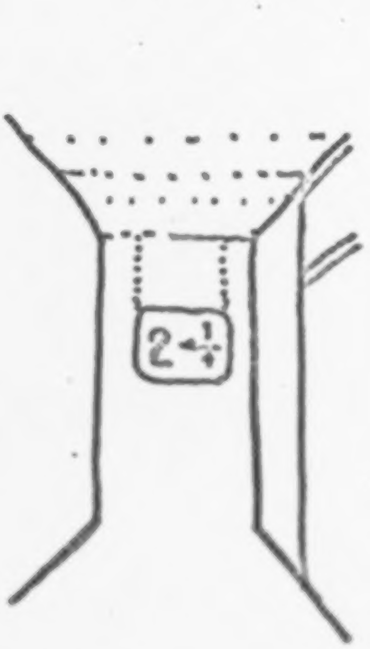
Many types of conventional signs can be totally eliminated. Bathrooms, for example, can be indicated by a constant color for boys or girls, by a special template fitted to the doorknob (Illustration 5b), or by a push plate in a characteristic color.

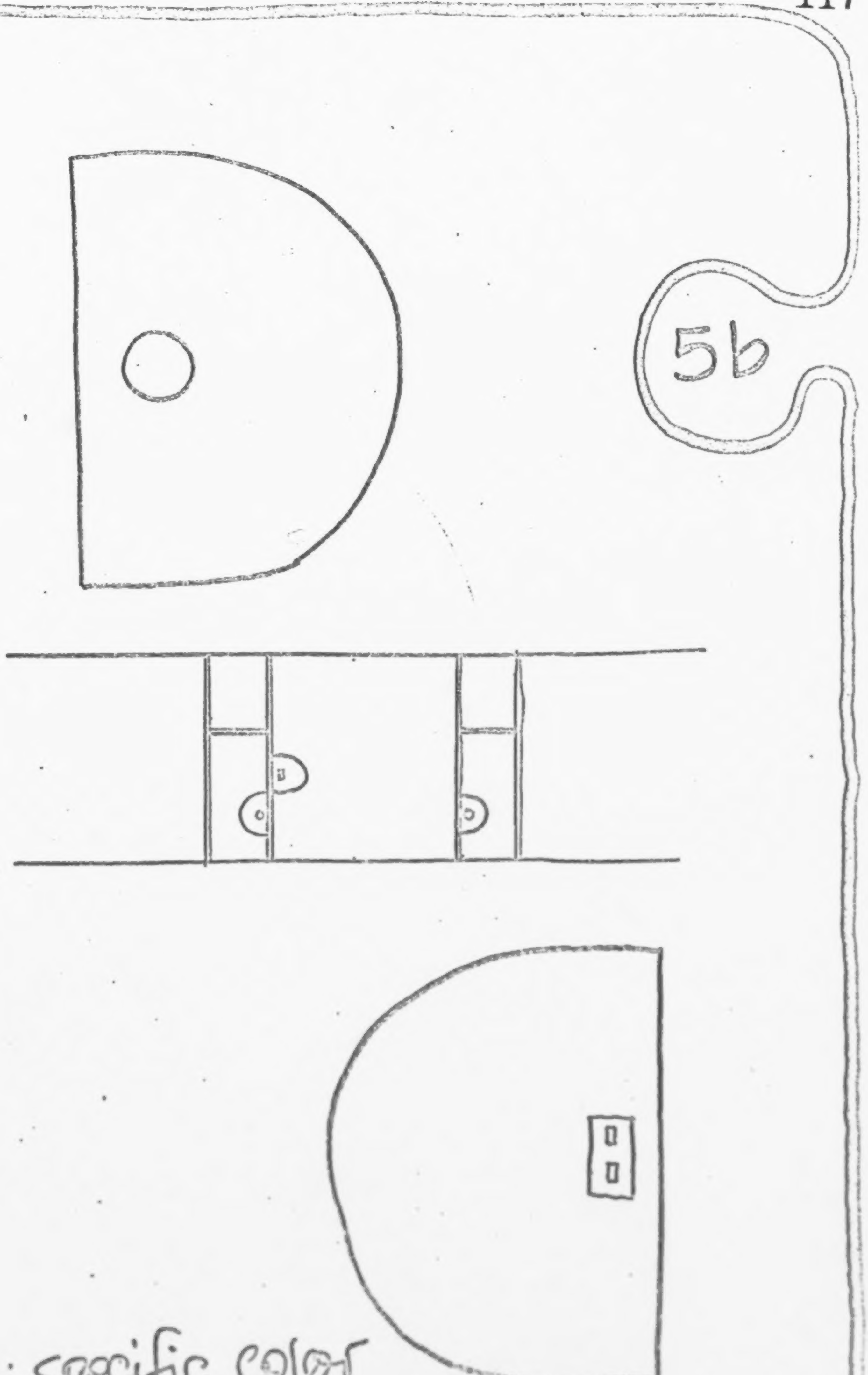
This is not to say that some verbal indicators should not be permanent. No one ever moves a pool or a gymnasium or a staircase, for instance; but the visual indicator of these spaces, though permanent, need not be conventional. (Illustration 6a) And,



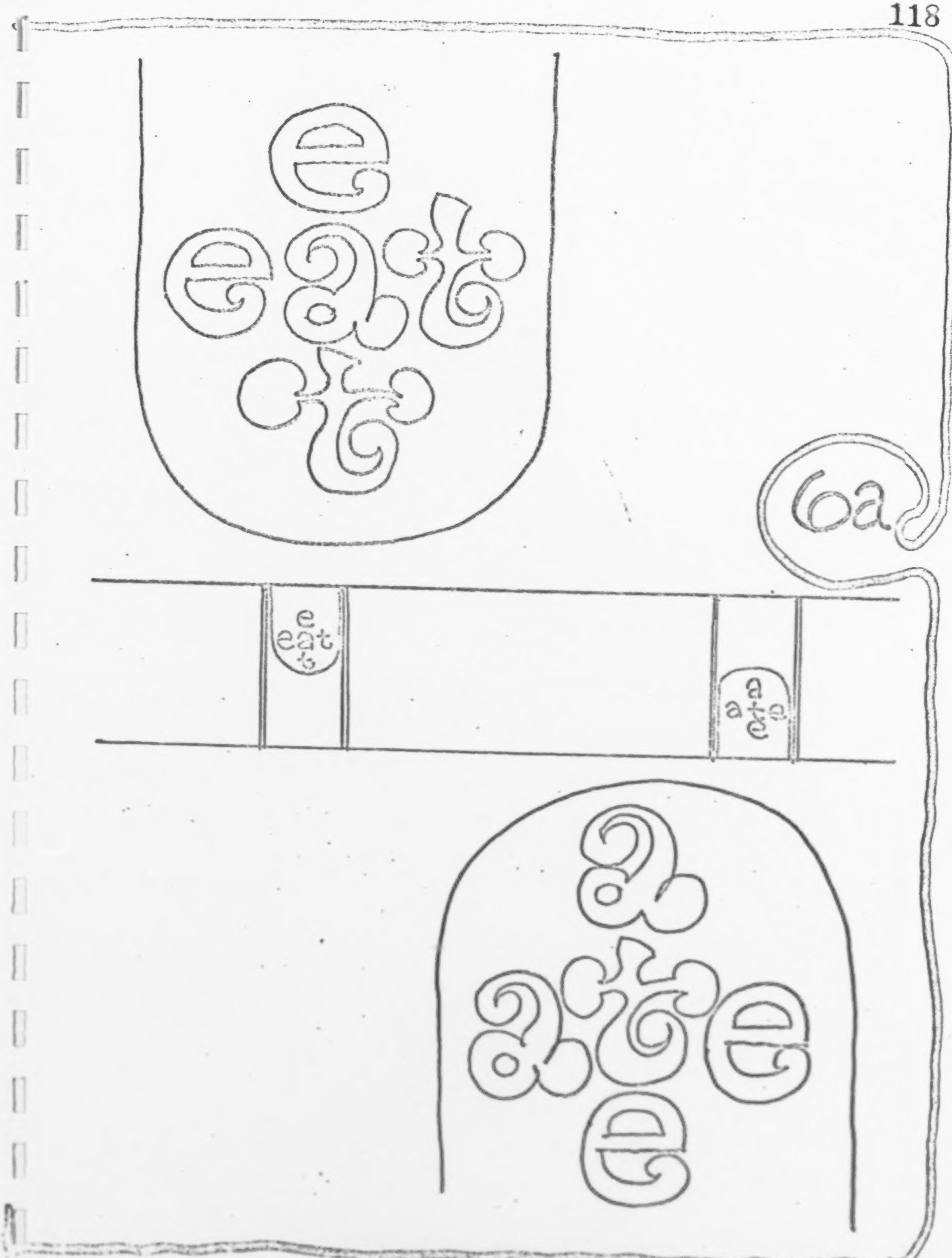
5a

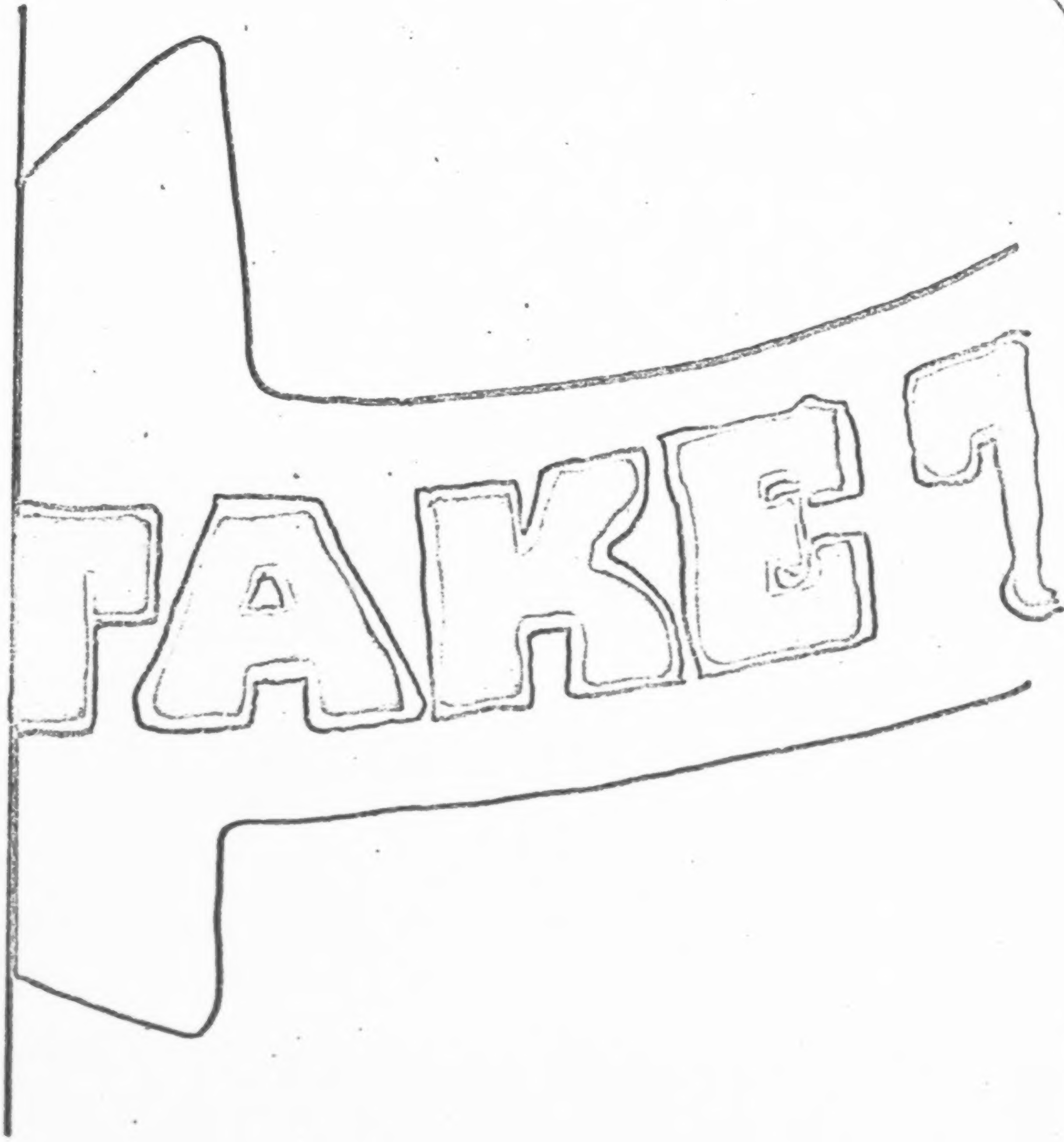


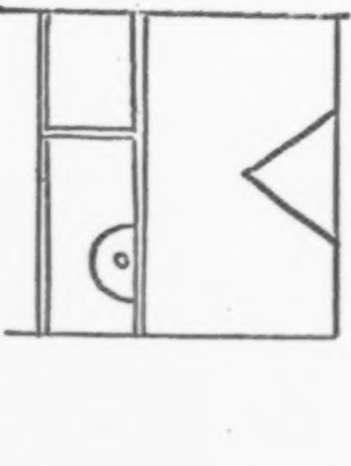


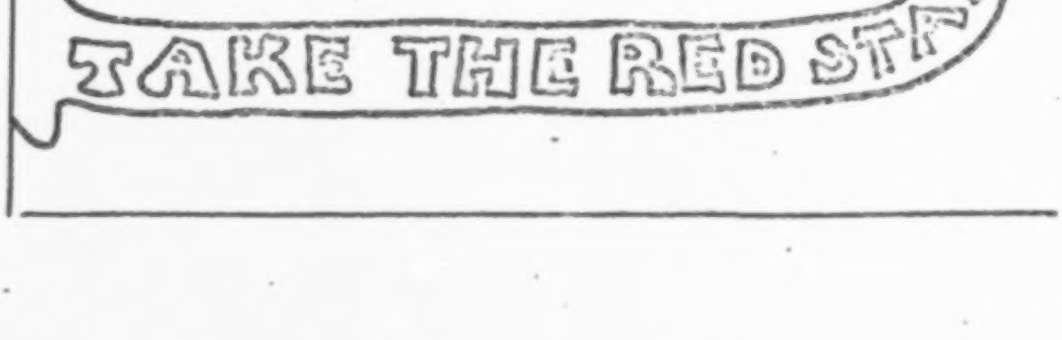


Note: specific color templates can indicate function - as for lavatories, lightswitches, et al


6a






TAKE THE RED STAIRS

6a

in planning these, it is important to relate the color to the space indicated. A blue sign indicating a pool is appropriate; a red sign would be an inaccurate abstraction. Similarly, an indicator must also relate to the function. Swimming, for instance, creates movement of water; the sign can indicate this creating waves as well. (Illustration 6b) Finally, a permanent indicator must also relate to the place on which it occurs. In color, it must relate as part of the overall color scheme; it can also relate to the very material on which it is applied. In the First Facility it can be created of the module of the block, once again emphasizing the abstract concept of the numbers. (Illustration 3a)

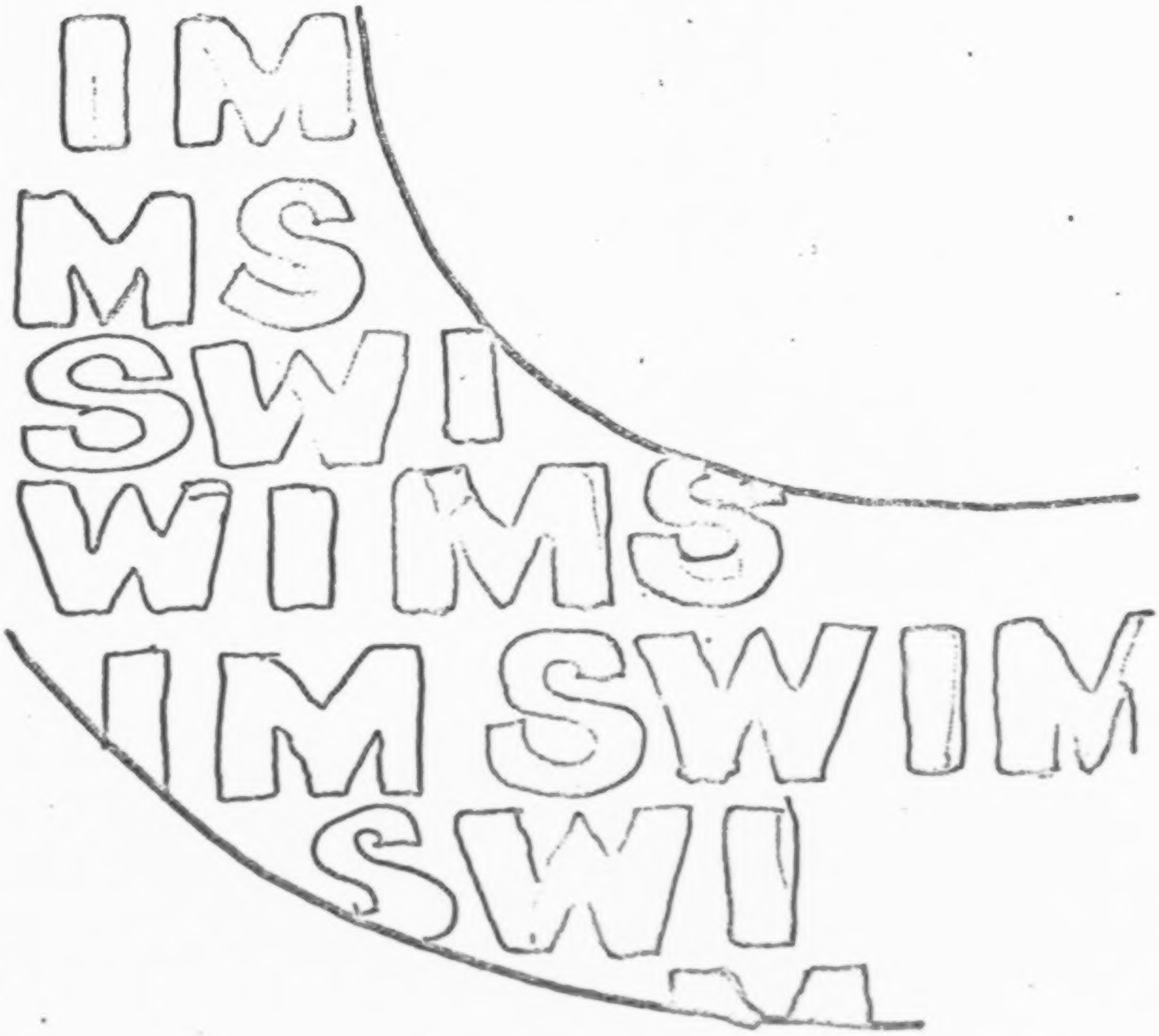
B. Graphic Software

The other half of any school graphics program can also be roughly divided into two groups: those included in the graphics contract and those included as equipment. Both groups can be characterized as temporary, flexible and variable.

Those that can be included in the graphics contract can readily be identified by relation to the performance requirements of the age group they serve.

In the earliest years, between three and five, children have a basic need to explore coupled with a high level of physical activity. A graphic environment rich in variety, color and content can be developed so that the non-reader can make his way easily about the school. The entire graphics program should be flexible and rotatable. Mirrors, for example, can be fitted into the modular pattern of either the concrete block walls or the demountable partitions put to use in the equipment program. Mirrors can show reflectivity; concave and convex mirrors can be educational while also being fun.

6b


IM
MS
SWI
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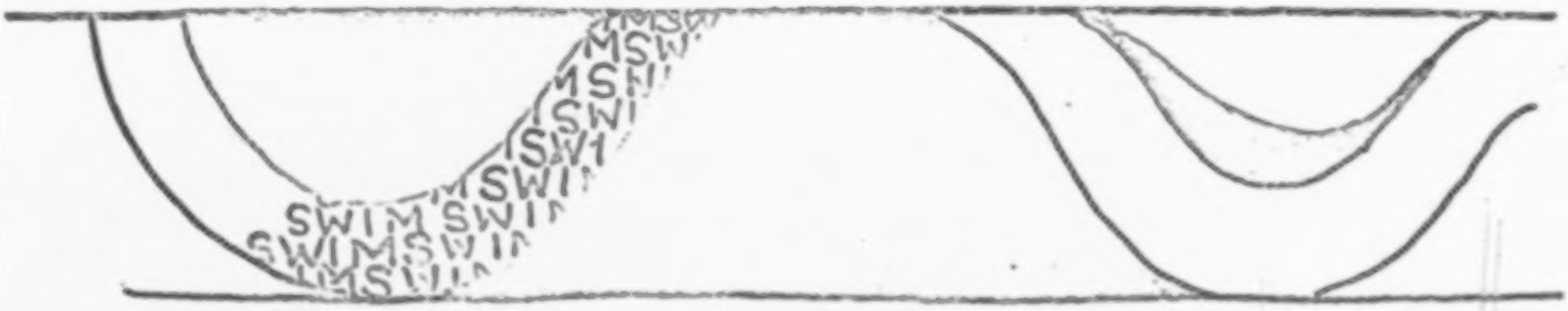
IM SWIM
SWI


MSW
MSW
MSWI
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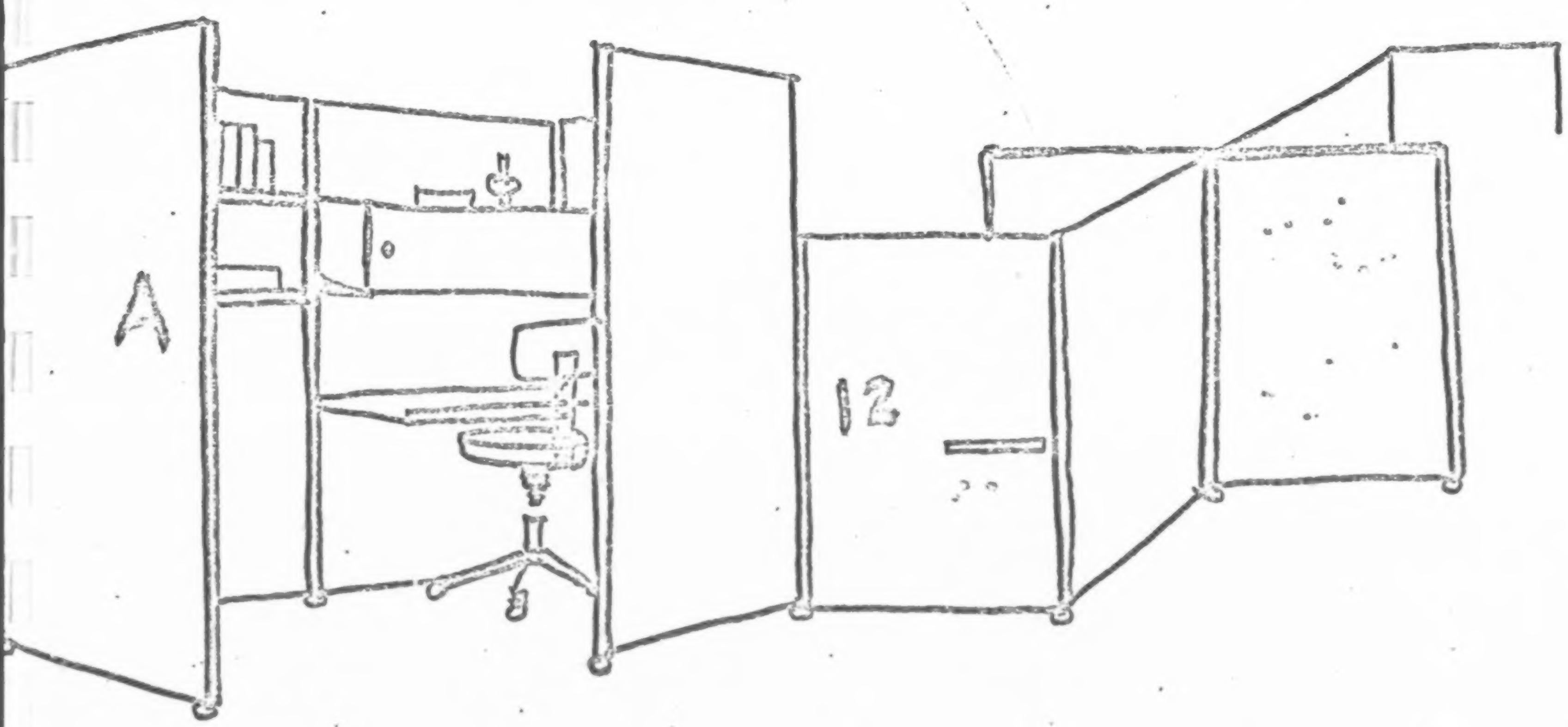
SWIM SWI
SWIMSWI

Magnetic chalkboard can be an important element in the graphic program. A large assortment of accessories can make these magnetized surfaces into meaningful graphics: magnets in different sizes or shapes to manipulate into changing patterns, sheet or magnetized paper for instant collages, three-dimensional magnets to illustrate abstract relationships of space. "Chalk", made of water soluble magic markers, can be used as paint brushes on these surfaces as well and animation can be projected, making use of them as screens, with slide or movie projectors.

Other modular equipment, in the form of interlocking cubes for example, can be used to relate floor to ceiling in easy stages. In the First Facility, where the ceilings are eleven feet high, it would be a very easy learning experience to teach a child that by a given module he can progress from being "three to five" to being "five to seven" or even "seven to nine" or "nine to twelve". (Illustration 8a) For the young reader in the next group, ages five to seven, a more structured and sophisticated environment is needed. These children are capable of longer attention spans and the need to integrate numerical exercises with reading lessons can be aided and abetted by the graphics program devised.

The modular partition system, for example, can be used as it is with the younger group, but its scope greatly enlarged. Magnetic shapes can be used as map-making devices to show far-away places or even to show how the school itself is designed with inter-relating areas which can be easily transferred into lessons in spatial relationships. Increased participation by the children in using slide techniques to make color and shape changes can be an important lesson in learning color values.



8a

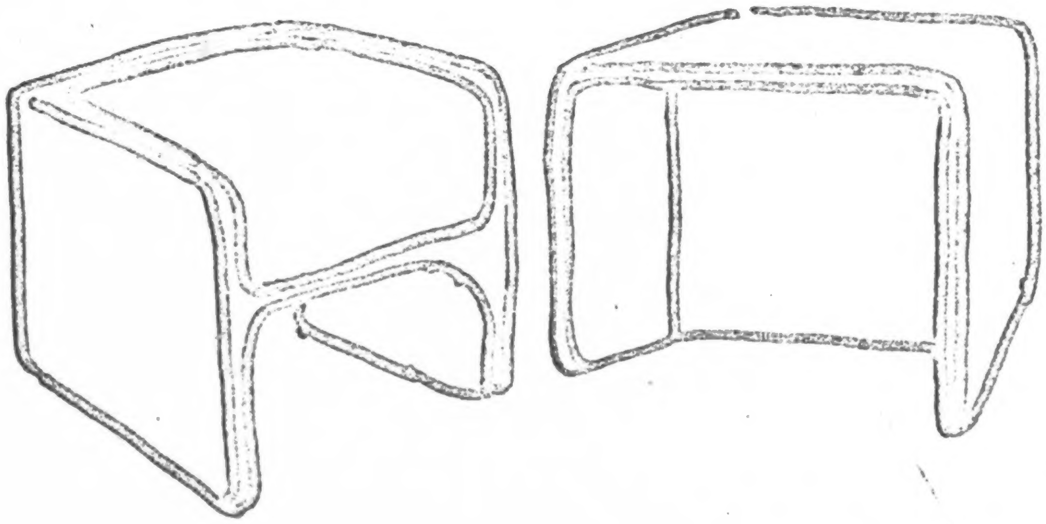
Directional graphics within these areas can be made by the children themselves, attached to magnetic surfaces and hung from pre-fixed hooks in the ceiling. (Illustration 5a) Furniture for this group should, of course, be scaled to the age. But because of the modular units, high and low groups can be created; . it must still be flexible enough to be easily rearranged into new patterns of function and color by the children themselves, relating to the other modular concepts of the building in both scale and color. A cube which can be both a chair and a table can become a much more complex environment through the easy grouping of many such cubes. (Illustration 9b)

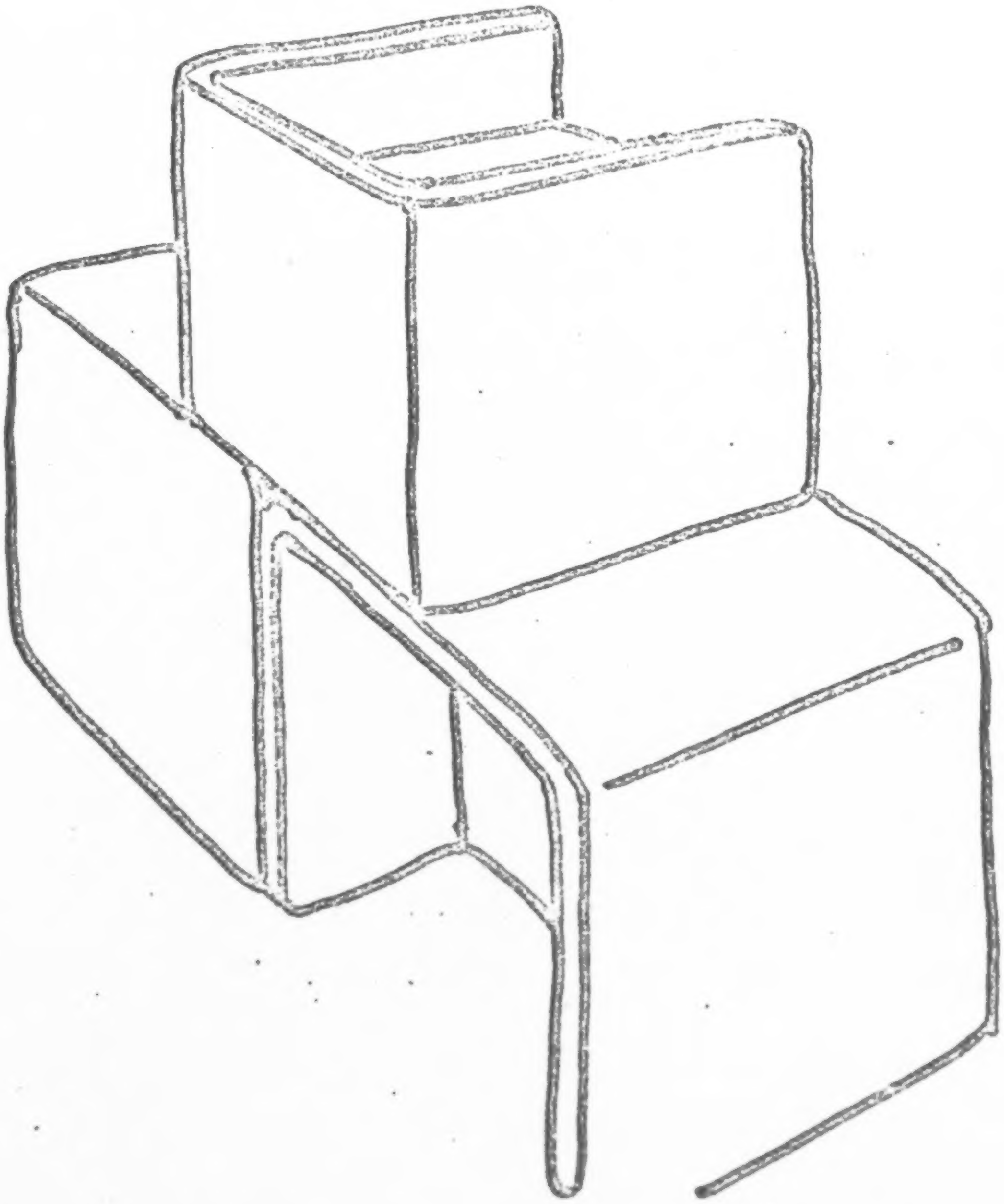
For children from seven to twelve, arithmetic and discipline can be stressed to develop a numerical sense and a concept of probability and statistics by the whole physical structure of the learning spaces.

The three-dimensional qualities of much of the equipment, from the modular partitions to the concrete block construction to the tables and chairs themselves lend themselves to geometric and algebraic expressions. The partition system, based on a ten foot module, for example, can incorporate its own modular properties in storage, carrels and display systems. Tracks in the ceilings allow panels to be hung at right angles to walls (Illustration 9b) to illustrate divisions in three dimensions, and rods inserted into the slotted standards on the concrete block walls can be fitted to extend still another dimension in space.

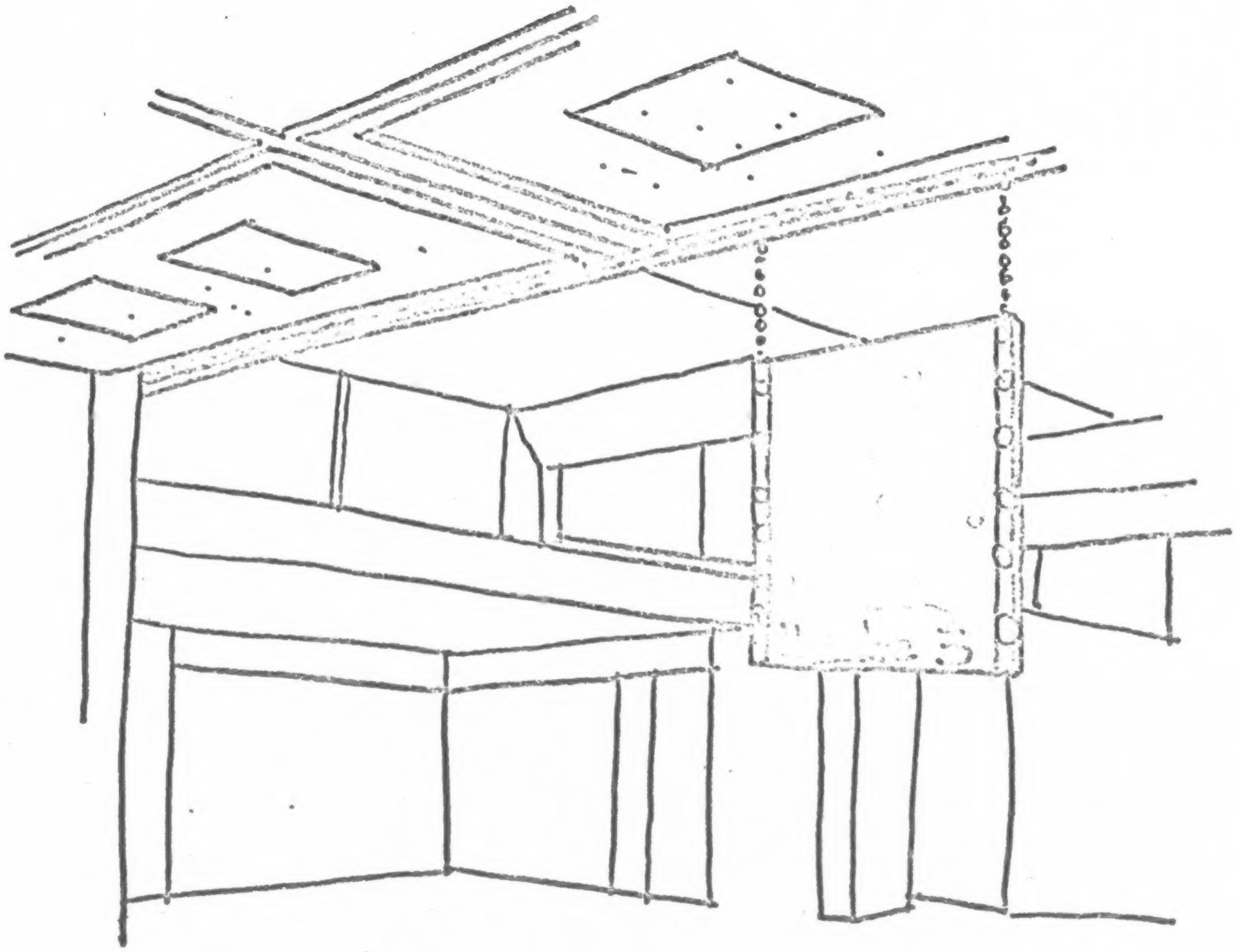
Increased student participation in the design and execution of graphics can help develop a more refined sense of space and environment as well. In the all-purpose "music room", seniors could have the project of projecting their own group feelings

9a





9b



about space. Working in teams with projections, paints, collage papers or any medium, they could totally change the "space concept" on walls purposely left unadorned.

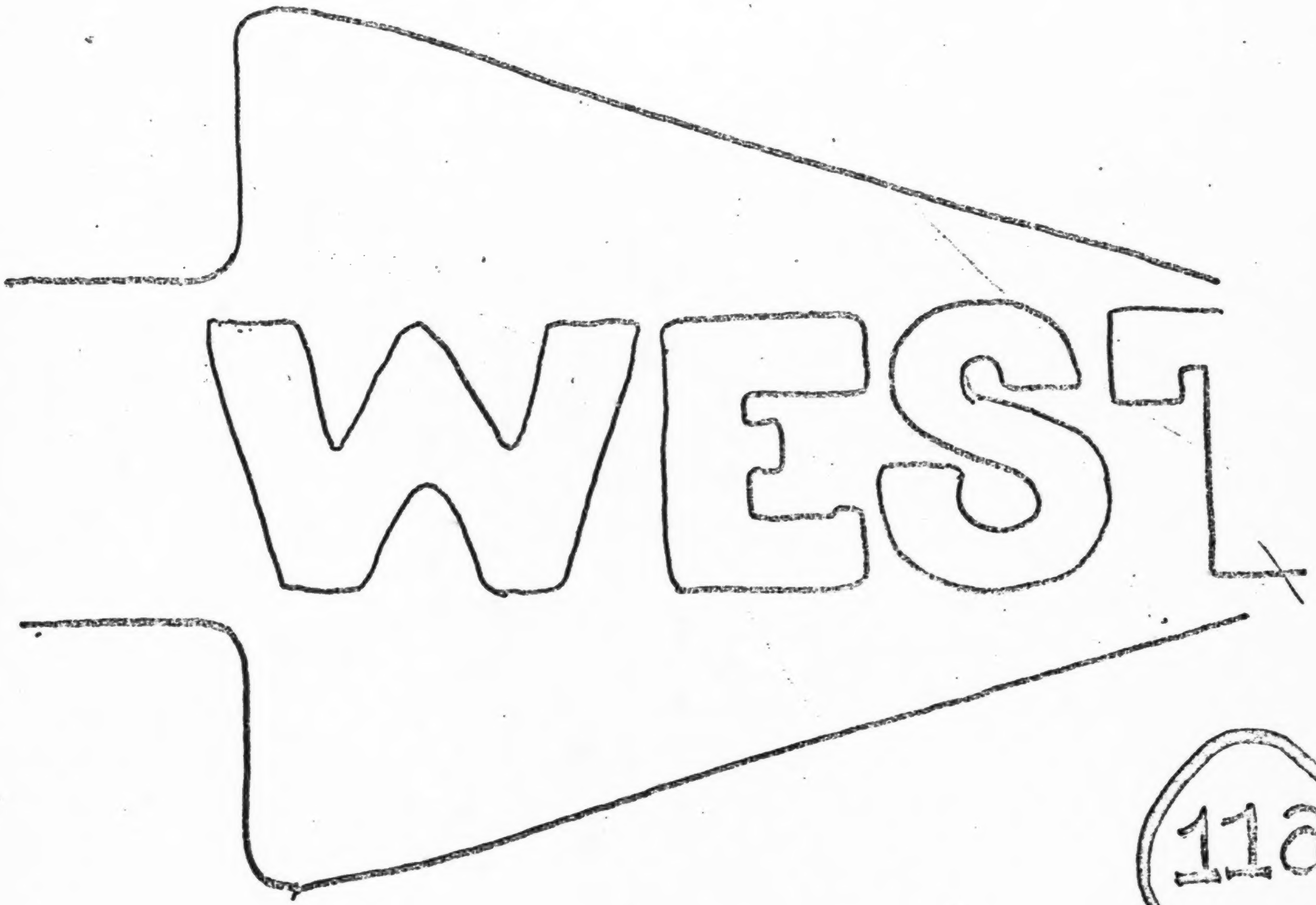
School displays relating subject matter to the community needs or to subjects under study could be another project program for the older children. Shelves or display cases of various materials modularized for the 4' spacing of standards should be used. Stencils using letter or number cut-outs could be provided for this group, allowing them to rearrange or redesignate spaces as they wish within their own learning areas as well as to illustrate the concepts they are studying.

C. Color

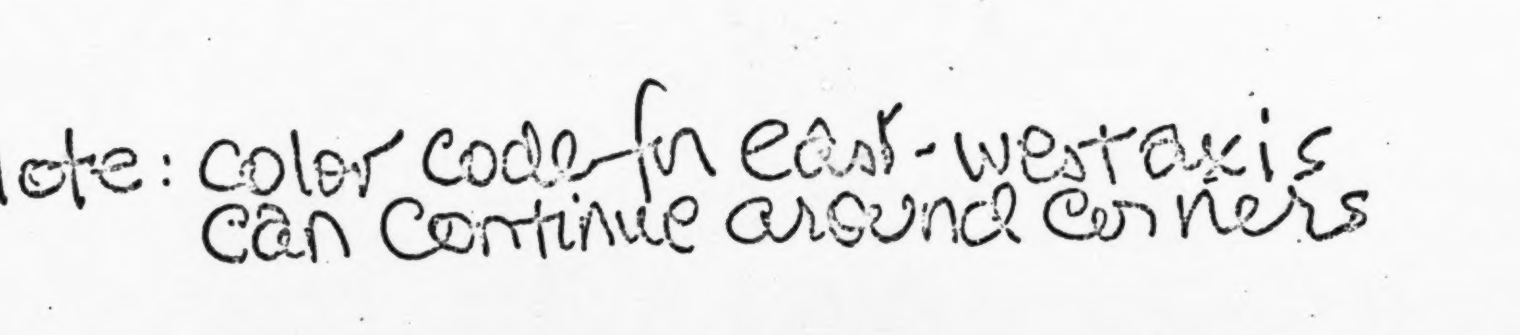
In any school, color is an integral and vital part of the graphics program. It is related to the overall graphic concept in three general areas: function, finish and furnishings -- the three "f's" of the graphic panorama.

Function is, obviously, the heart of any graphic concept. Color can also relate to the physical orientation of the entire building by being used in its relation to an axis. For instance, the East Section of the First Facility is red and the West Section is blue. In accompanying signs, then, these key colors are repeated, showing where you are and how to get there. These colors relate to an east-west axis. (Illustration 11a)

Color continuity can be a guiding factor in location in other non-verbal ways. Certain colors, for example, can always denote function, such as red meaning exit, blue or yellow or green meaning something else. In the First Facility, each age group has its own characteristic set of colors, but the connections between age groups



11a


LOW
FOLLOW THE BLUE ARROW WEST

Note: color code for east-west axis
can continue around corners

can provide color continuity in a common color used for floors or non-accent walls.

Colors can be tagged verbally as well to indicate function. A stairwell cutting through two levels can be labeled by its color, or a special function space, such as a pool or gymnasium, can be color coded individually since these spaces are unique.

Color in relation to finish can also be a meaningful experience in the daily routine of a child. Texture -- or the lack of it -- can be accentuated by color; the roughness of concrete block painted bright blue, for instance, contrasted with the smooth cool whiteness of a metal partition can be a big change for a small child. Similarly, color properly allocated to finishes can create the optimum environment for young eyes. If colors are specified so that equipment is integrated with the color of the finishes in the prime contract, a genuine color pattern can be created -- and instantly recognized by the child.

In the same way, color choices in furnishings must be related to the color code of the school. Lockers, partitions, chairs, tables -- all these must have their own predetermined place in the school, carrying to still another degree the implicit graphic lessons involved.

The graphics should be flexibly planned so that all the graphics can be used by more than one age group. They must be color coded so that the students and teachers can manipulate total space. Finally, they must be considered as an essential part of the modern school environment.

EXTERIOR ENVIRONMENT

A stated goal for the Fort Lincoln school system is that the learning environment should not be limited to a single physical structure. Instead, the educational program should be expanded to include the immediate surroundings, the community and the city. The school staff and the students must draw upon the resources of the new town, the 335-acre site, the surrounding communities in northeast Washington and Metropolitan Washington as a whole.

Thus the exterior environment of the First Facility, the outside of the building as well as the entire 335-acre site, offers unlimited possibilities for learning. Many of these projects and studies should be incorporated into the regular academic courses such as science and math; others can be used for separate studies in ecology.

Recommendations for two areas, the outdoor play area and the roof area, are described below. The list is far from complete. Instead, the activities continually ought to be redefined and reinterpreted by the school staff and students to meet existing needs and interests.

The recommendations in this section were prepared by the Environment Science Center of Golden Valley, Minnesota. The Center, under the direction of B. B. Clark, C. E. Vogt and M. J. Naylon, is funded by the U. S. Office of Education. The entire text is included in the appendix.

Pre-School and Kindergarten Outdoor Play Areas

General emphasis in these grades is on school on one hand and on family and the "home and shelter" concept on the other. Provision should be made in the outdoor play area for structures which could represent home and shelter. One might conform to the square or rectilinear nature of traditional structures. Another could be curved, domed or cylindrical.

Roof Areas

Wall and roof surfaces near the planetarium could be used to reinforce the concept of size, distance, and even the universe through graphic representations of the solar system and the planets.

A solar activity area enclosed by vertical, translucent panels allowing sunlight to pass through could be used for several purposes. In science classes, maps of solar movement could be made and calculations of the angle of light as the sun moves could be measured by tracking lines of light in the plastic panels. The area also could be used for dramatic presentations as well as classroom space.

A micro-climate planter is designed as a science resource center for the study of micro-climate and solar orientation in relation to plant growth. It is placed on wheels and has a changeable angle to permit for slope severity studies and north-south orientation micro-climates. The planter has been compartmentalized to decrease soil erosion and allow space for a number of different plants.

Additional plants and vegetation can be grown in the planters on the edge of the roof. These plants could be used by science classes and provide materials such as seeds for a seed mosaics or serve as models for sketches or paintings for art classes.

A large stream box containing sand, gravel and water could also be designed for the roof. The effects of wind and rain can be examined in the sand. The water source can be used to create streams for a variety of experiments. Dams, artificial barriers and minatures such as of the Anacostia River Valley can be constructed to explore how moving water affects the landscape.

The air conditioning unit can be used to study heating, cooling and condensation. Similarly, other functional units throughout the building could be used for instructional purposes.

Finally, the open ares on the roof could be used for study, work projects and experiments. For instance, children could measure air pollution and pollen dispersion of air borne algae and fungus spores by setting up petroleum jelly covered slides and checking regularly for algae and fungus growth. Or, wind and turbulence patterns on the corners of the roof could be studied and mapped on graph paper.

IMPLEMENTATION

Setting up a facility such as this which is designed around the most innovative ideas in education and architecture is a difficult job. Coordination between parts is essential during the implementation stage and after the building is in use.

New equipment and materials which are compatible with the educational system and building design have been specified. A change in any one component, either in the building design or in the equipment, could necessitate changes in the other components. For instance, the flexible, open-plan for the four stages of the First Facility demands the use of carrels and demountable partitions to divide up the space. If the compatibility between the building and the equipment is not maintained, if the carrels are not used, the flexibility and the success of the facility will be sharply reduced.

The implementation should be directed by a group of individuals of different professions and from different departments in the District school system. The group set up by the Special Projects Division, should include representatives from the District's Building and Grounds, Equipment, Furnishings, and Budgeting departments.

The group could become a permanent committee for all schools designed on the space concept. They should establish and maintain contact with suppliers to purchase the special equipment. Ordering in bulk for many schools at once, they could be in a position to effect the design and development of new products and new procedures for the open space schools of the future.

When the facility is completed,the maintenance staff will have to continue the activities that are initiated by the above group. The concept that a facility can be maintained daily by the users requires a very different attitude on the part of maintenance staff.

The staff should include: a designer to help the teachers and students create new and varied space configurations; a facilitator to advise the school population about what equipment is available and how to obtain it; and a member who is mechanically oriented to construct the partitions systems. Above all, all of the staff must be eager to work with the staff and children so that the physical aspects of the facility continue to be used as educational tools!